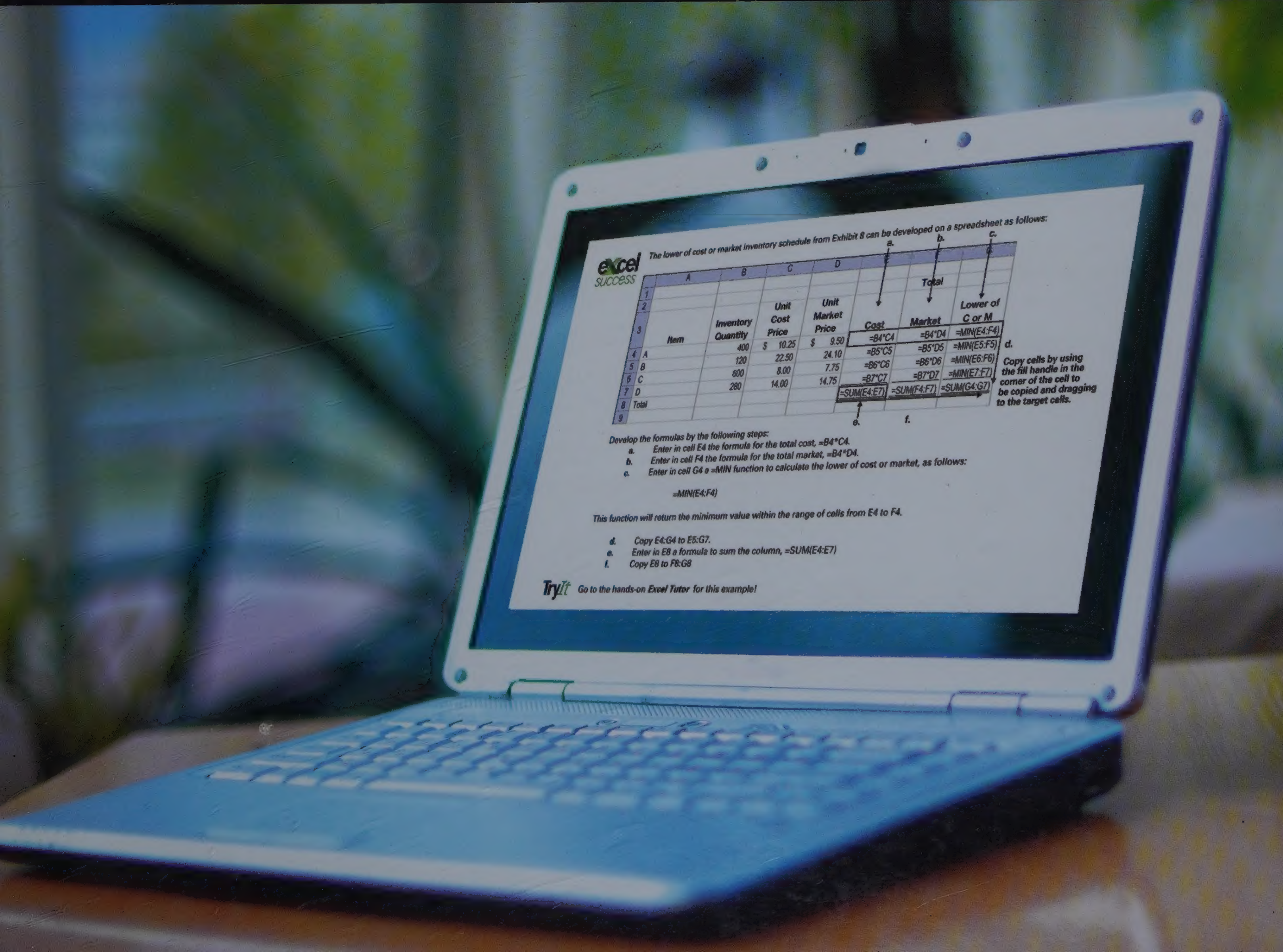
2e

ACCOUNTING

Using excel for Success

Reeve • Warren • Duchac



excel success

The lower of cost or market inventory schedule from Exhibit 8 can be developed on a spreadsheet as follows:

a. b. c.

	A	B	C	D	E	F	G
1							
2						Total	
3	Item	Inventory Quantity	Unit Cost Price	Unit Market Price	Cost	Market	Lower of C or M
4	A	400	$ 10.25	$ 9.50	=B4*C4	=B4*D4	=MIN(E4:F4)
5	B	120	22.50	24.10	=B5*C5	=B5*D5	=MIN(E5:F5)
6	C	600	8.00	7.75	=B6*C6	=B6*D6	=MIN(E6:F6)
7	D	280	14.00	14.75	=B7*C7	=B7*D7	=MIN(E7:F7)
8	Total				=SUM(E4:E7)	=SUM(F4:F7)	=SUM(G4:G7)
9							

d. Copy cells by using the fill handle in the corner of the cell to be copied and dragging to the target cells.

e. f.

Develop the formulas by the following steps:

a. Enter in cell E4 the formula for the total cost, =B4*C4.
b. Enter in cell F4 the formula for the total market, =B4*D4.
c. Enter in cell G4 a =MIN function to calculate the lower of cost or market, as follows:

=MIN(E4:F4)

This function will return the minimum value within the range of cells from E4 to F4.

d. Copy E4:G4 to E5:G7.
e. Enter in E8 a formula to sum the column, =SUM(E4:E7)
f. Copy E8 to F8:G8

TryIt Go to the hands-on *Excel Tutor* for this example!

The Basics

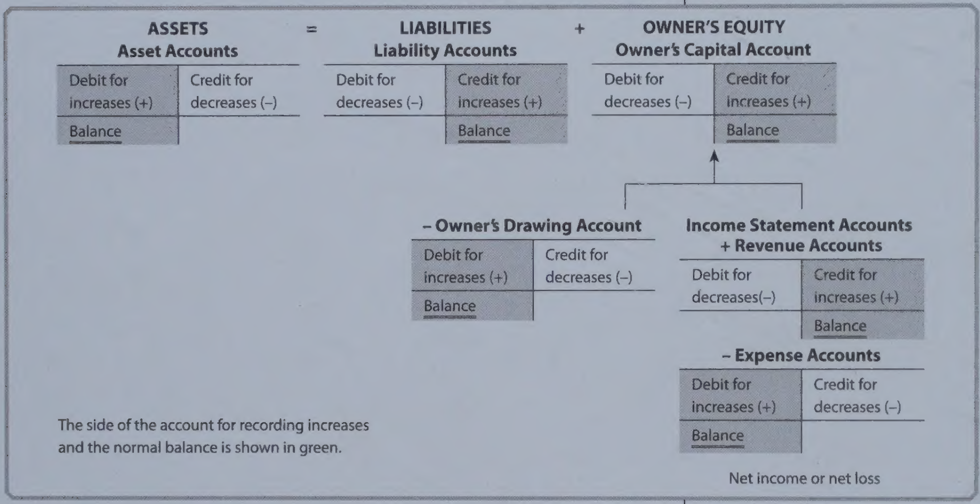
1. Accounting Equation:

Assets = Liabilities + Owner's Equity

2. T Account:

Account Title	
Left Side	Right Side
debit	credit

3. Rules of Debit and Credit:



The side of the account for recording increases and the normal balance is shown in green.

4. Analyzing and Journalizing Transactions

1. Carefully read the description of the transaction to determine whether an asset, a liability, an owner's equity, a revenue, an expense, or a drawing account is affected.
2. For each account affected by the transaction, determine whether the account increases or decreases.
3. Determine whether each increase or decrease should be recorded as a debit or a credit, following the rules of debit and credit.
4. Record the transaction using a journal entry.
5. Periodically post journal entries to the accounts in the ledger.
6. Prepare an unadjusted trial balance at the end of the period.

5. Financial Statements:

INCOME STATEMENT

A summary of the revenue and expenses of a business entity for a specific period of time, such as a month or a year.

STATEMENT OF OWNER'S EQUITY

A summary of the changes in the owner's equity of a business entity that have occurred during a specific period of time, such as a month or a year.

BALANCE SHEET

A list of the assets, liabilities, and owner's equity of a business entity as of a specific date, usually at the close of the last day of a month or a year.

STATEMENT OF CASH FLOWS

A summary of the cash receipts and cash payments of a business entity for a specific period of time, such as a month or a year.

6. Accounting Cycle:

1. Transactions are analyzed and recorded in the journal.
2. Transactions are posted to the ledger.
3. An unadjusted trial balance is prepared.
4. Adjustment data are assembled and analyzed.
5. An optional end-of-period spreadsheet is prepared.
6. Adjusting entries are journalized and posted to the ledger.
7. An adjusted trial balance is prepared.
8. Financial statements are prepared.
9. Closing entries are journalized and posted to the ledger.
10. A post-closing trial balance is prepared.

7. Types of Adjusting Entries:

1. Prepaid expense (deferred expense)
2. Unearned revenue (deferred revenue)
3. Accrued revenue (accrued asset)
4. Accrued expense (accrued liability)
5. Depreciation expense

Each entry will always affect both a balance sheet account and an income statement account.

8. Closing Entries:

1. Revenue account balances are transferred to an account called Income Summary.
2. Expense account balances are transferred to an account called Income Summary.
3. The balance of Income Summary (net income or net loss) is transferred to the owner's capital account.
4. The balance of the owner's drawing account is transferred to the owner's capital account.

9. Special Journals:

Providing services on account ⟶ recorded in ⟶ Revenue (sales) journal
Receipt of cash from any source ⟶ recorded in ⟶ Cash receipts journal
Purchase of items on account ⟶ recorded in ⟶ Purchases journal
Payments of cash for any purpose ⟶ recorded in ⟶ Cash payments journal

10. Shipping Terms:

	FOB Shipping Point	FOB Destination
Ownership (title) passes to buyer when merchandise is..................	delivered to freight carrier	delivered to buyer
Freight costs are paid by.........................	buyer	seller

11. Format for Bank Reconciliation:

Cash balance according to bank statement		$xxx
Add: Additions by company not on bank statement	$xx	
Bank errors	xx	xx
		$xxx
Deduct: Deductions by company not on bank statement	$xx	
Bank errors	xx	xx
Adjusted balance		$xxx

Cash balance according to company's records		$xxx
Add: Additions by bank not recorded by company	$xx	
Company errors	xx	xx
		$xxx
Deduct: Deductions by bank not recorded by company	$xx	
Company errors	xx	xx
Adjusted balance		$xxx

12. Inventory Costing Methods:

1. First-in, First-out (FIFO)
2. Last-in, First-out (LIFO)
3. Average Cost

13. Interest Computations:

Interest = Face Amount (or Principal) × Rate × Time

14. Methods of Determining Annual Depreciation:

STRAIGHT-LINE: $\dfrac{\text{Cost} - \text{Estimated Residual Value}}{\text{Estimated Life}}$

DOUBLE-DECLINING-BALANCE: Rate* × Book Value at Beginning of Period

*Rate is commonly twice the straight-line rate (1 ÷ Estimated Life).

15. Adjustments to Net Income (Loss) Using the Indirect Method

	Increase (Decrease)
Net income (loss)	$ XXX
Adjustments to reconcile net income to net cash flow from operating activities:	
Depreciation of fixed assets	XXX
Amortization of intangible assets	XXX
Losses on disposal of assets	XXX
Gains on disposal of assets	(XXX)
Changes in current operating assets and liabilities:	
Increases in noncash current operating assets	(XXX)
Decreases in noncash current operating assets	XXX
Increases in current operating liabilities	XXX
Decreases in current operating liabilities	(XXX)
Net cash flow from operating activities	$ XXX or $(XXX)

16. Contribution Margin Ratio $= \dfrac{\text{Sales} - \text{Variable Costs}}{\text{Sales}}$

17. Break-Even Sales (Units) $= \dfrac{\text{Fixed Costs}}{\text{Unit Contribution Margin}}$

18. Sales (Units) $= \dfrac{\text{Fixed Costs} + \text{Target Profit}}{\text{Unit Contribution Margin}}$

19. Margin of Safety $= \dfrac{\text{Sales} - \text{Sales at Break-Even Point}}{\text{Sales}}$

20. Operating Leverage $= \dfrac{\text{Contribution Margin}}{\text{Income from Operations}}$

21. Variances

$$\text{Direct Materials Price Variance} = \left(\text{Actual Price} - \text{Standard Price}\right) \times \text{Actual Quantity}$$

$$\text{Direct Materials Quantity Variance} = \left(\text{Actual Quantity} - \text{Standard Quantity}\right) \times \text{Standard Price}$$

$$\text{Direct Labor Rate Variance} = \left(\text{Actual Rate per Hour} - \text{Standard Rate per Hour}\right) \times \text{Actual Hours}$$

$$\text{Direct Labor Time Variance} = \left(\text{Actual Direct Labor Hours} - \text{Standard Direct Labor Hours}\right) \times \text{Standard Rate per Hour}$$

$$\text{Variable Factory Overhead Controllable Variance} = \text{Actual Variable Factory Overhead} - \text{Budgeted Variable Factory Overhead}$$

$$\text{Fixed Factory Overhead Volume Variance} = \left(\text{Standard Hours for 100\% of Normal Capacity} - \text{Standard Hours for Actual Units Produced}\right) \times \text{Fixed Factory Overhead Rate}$$

22. Rate of Return on Investment (ROI) $= \dfrac{\text{Income from Operations}}{\text{Invested Assets}}$

Alternative ROI Computation:

$$\text{ROI} = \frac{\text{Income from Operations}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Invested Assets}}$$

23. Capital Investment Analysis Methods:

1. Methods That Ignore Present Values:
   - A. Average Rate of Return Method
   - B. Cash Payback Method
2. Methods That Use Present Values:
   - A. Net Present Value Method
   - B. Internal Rate of Return Method

24. Average Rate of Return $= \dfrac{\text{Estimated Average Annual Income}}{\text{Average Investment}}$

25. Present Value Index $= \dfrac{\text{Total Present Value of Net Cash Flow}}{\text{Amount to Be Invested}}$

26. Present Value Factor for an Annuity of $1 $= \dfrac{\text{Amount to Be Invested}}{\text{Equal Annual Net Cash Flows}}$

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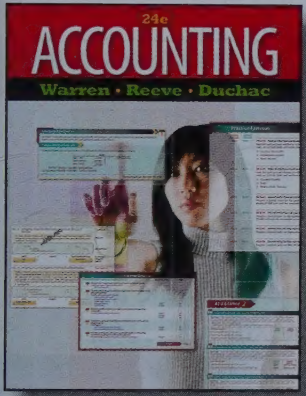

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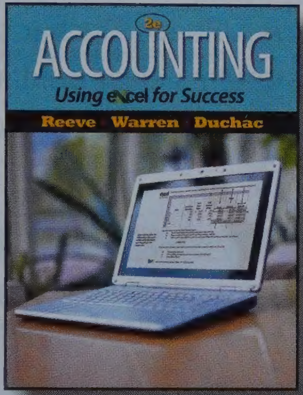
- 70% Financial Accounting / 30% Managerial Accounting



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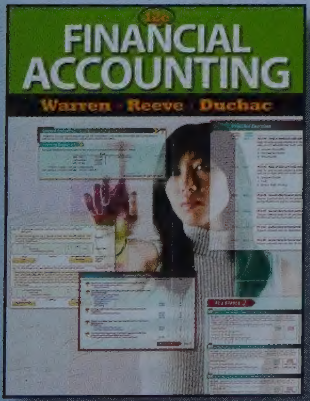
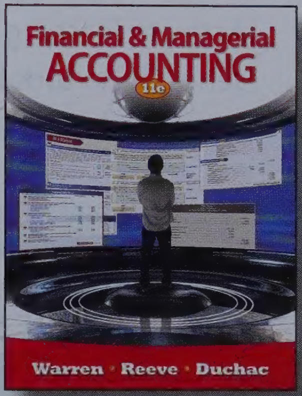


- Financial Chapters 1-17 from *Accounting, 24e*

Corporate Approach



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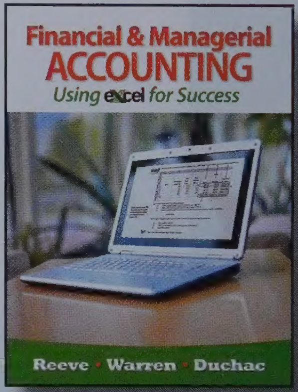
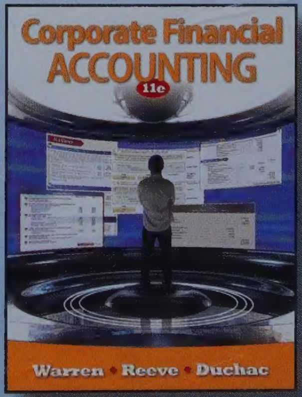
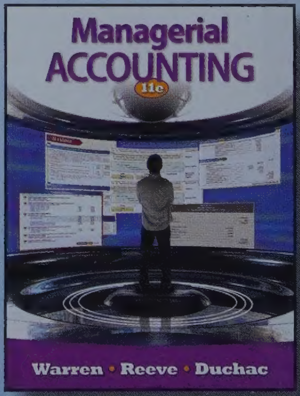


- 27 Chapters
- 50% Financial Accounting / 50% Managerial Accounting
- Includes online Excel Try It! Tutorials



- Chapters 1-15 from *Financial & Managerial Accounting, 11e*



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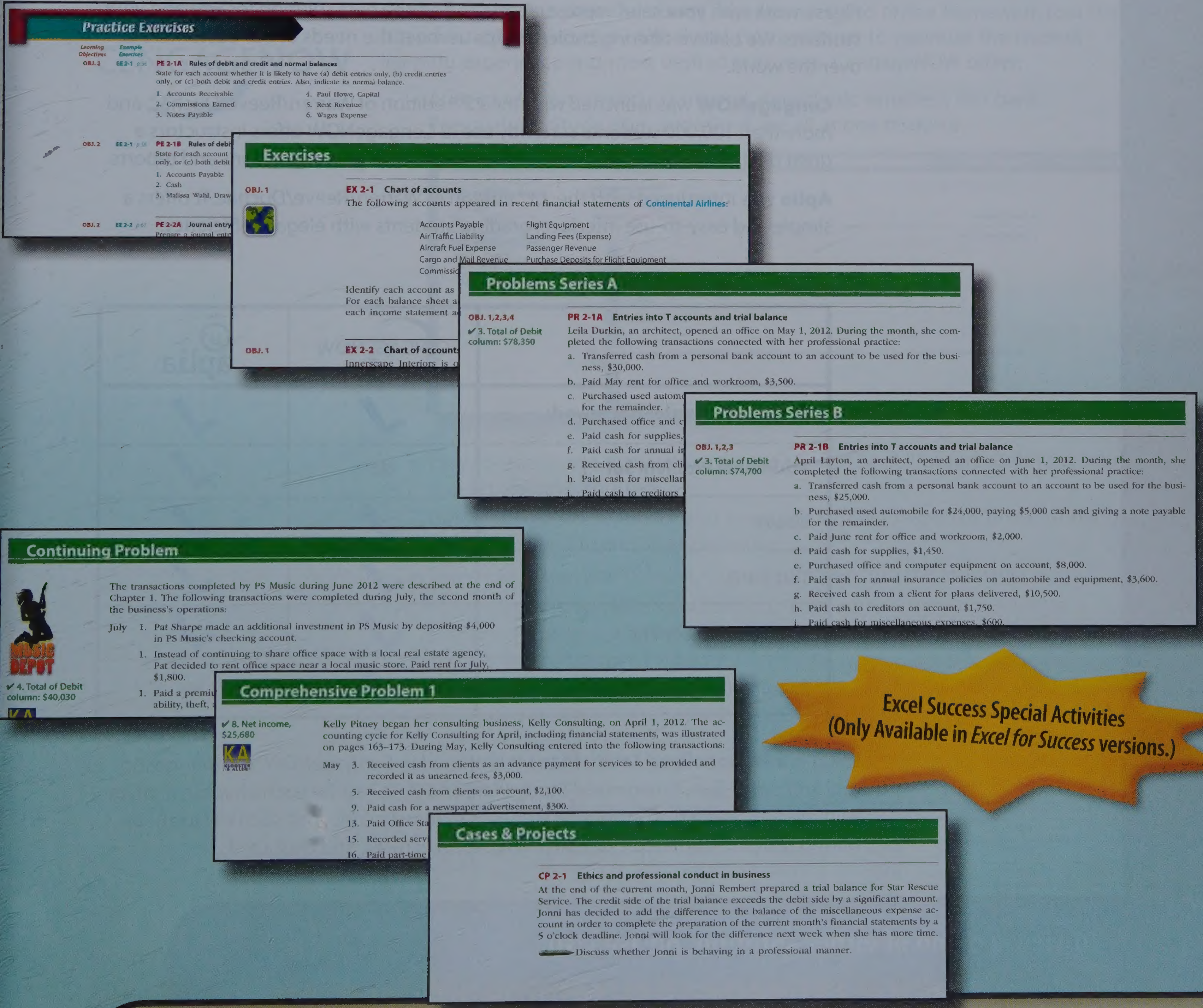
Learn More in this Guide:

- See pp. 4-8 for **Online Homework Options**
- See pp. 10-11 for a description of the **Complete Learning System**
- See pp. 12-13 for information on **Real World Examples**
- See pp. 14-15 for details on **Instructor & Student Resources**

Reliable End-of-Chapter Homework Materials

Students need to practice accounting so that they can understand and use it. To give students the greatest possible advantage in the real world, the authors have written comprehensive, time-tested end-of-chapter material. Students can master the basic accounting principles before moving onto more decision-oriented content and cases.

Each problem is verified by four different accounting experts to ensure accuracy. This time-tested content provides instructors with many choices.



Practice Exercises

Learning Objectives	Example Exercises	
OBJ. 2	EE 2-1 p. 56	**PE 2-1A Rules of debit and credit and normal balances**

State for each account whether it is likely to have (a) debit entries only, (b) credit entries only, or (c) both debit and credit entries. Also, indicate its normal balance.

1. Accounts Receivable
2. Commissions Earned
3. Notes Payable
4. Paul Howe, Capital
5. Rent Revenue
6. Wages Expense

OBJ. 2 EE 2-1 p. 56 **PE 2-1B Rules of debi**

State for each account

only, or (c) both debit

1. Accounts Payable
2. Cash
3. Malissa Wahl, Draw

OBJ. 2 EE 2-2 p. 61 **PE 2-2A Journal entry**

Prepare a journal entr

Exercises

OBJ. 1

EX 2-1 Chart of accounts

The following accounts appeared in recent financial statements of Continental Airlines:

Accounts Payable
Air Traffic Liability
Aircraft Fuel Expense
Cargo and Mail Revenue
Commissio

Flight Equipment
Landing Fees (Expense)
Passenger Revenue
Purchase Deposits for Flight Equipment

Identify each account as

For each balance sheet a

each income statement a

OBJ. 1

EX 2-2 Chart of account

Innerscape Interiors is c

Problems Series A

OBJ. 1,2,3,4

✔ 3. Total of Debit column: $78,350

PR 2-1A Entries into T accounts and trial balance

Leila Durkin, an architect, opened an office on May 1, 2012. During the month, she completed the following transactions connected with her professional practice:

a. Transferred cash from a personal bank account to an account to be used for the business, $30,000.
b. Paid May rent for office and workroom, $3,500.
c. Purchased used automo
for the remainder.
d. Purchased office and c
e. Paid cash for supplies,
f. Paid cash for annual i
g. Received cash from cli
h. Paid cash for miscellan
i. Paid cash to creditors

Problems Series B

OBJ. 1,2,3

✔ 3. Total of Debit column: $74,700

PR 2-1B Entries into T accounts and trial balance

April Layton, an architect, opened an office on June 1, 2012. During the month, she completed the following transactions connected with her professional practice:

a. Transferred cash from a personal bank account to an account to be used for the business, $25,000.
b. Purchased used automobile for $24,000, paying $5,000 cash and giving a note payable for the remainder.
c. Paid June rent for office and workroom, $2,000.
d. Paid cash for supplies, $1,450.
e. Purchased office and computer equipment on account, $8,000.
f. Paid cash for annual insurance policies on automobile and equipment, $3,600.
g. Received cash from a client for plans delivered, $10,500.
h. Paid cash to creditors on account, $1,750.
i. Paid cash for miscellaneous expenses, $600.

Continuing Problem

✔ 4. Total of Debit column: $40,030

The transactions completed by PS Music during June 2012 were described at the end of Chapter 1. The following transactions were completed during July, the second month of the business's operations:

July 1. Pat Sharpe made an additional investment in PS Music by depositing $4,000 in PS Music's checking account.

1. Instead of continuing to share office space with a local real estate agency, Pat decided to rent office space near a local music store. Paid rent for July, $1,800.

1. Paid a premiu
ability, theft,

Comprehensive Problem 1

✔ 8. Net income, $25,680

Kelly Pitney began her consulting business, Kelly Consulting, on April 1, 2012. The accounting cycle for Kelly Consulting for April, including financial statements, was illustrated on pages 163–173. During May, Kelly Consulting entered into the following transactions:

May 3. Received cash from clients as an advance payment for services to be provided and recorded it as unearned fees, $3,000.

5. Received cash from clients on account, $2,100.

9. Paid cash for a newspaper advertisement, $300.

13. Paid Office Sta

15. Recorded serv

16. Paid part-time

Cases & Projects

CP 2-1 Ethics and professional conduct in business

At the end of the current month, Jonni Rembert prepared a trial balance for Star Rescue Service. The credit side of the trial balance exceeds the debit side by a significant amount. Jonni has decided to add the difference to the balance of the miscellaneous expense account in order to complete the preparation of the current month's financial statements by a 5 o'clock deadline. Jonni will look for the difference next week when she has more time.

Discuss whether Jonni is behaving in a professional manner.

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Product Comparison:

	CENGAGENOW	aplia
All End-of-Chapter Homework	✓	✓
Additional Problem Set	No	✓
eBook	✓	✓
Test Bank	✓	✓
Algorithmic Content	✓	✓
Personalized Study Plan	✓	No

What is a Personalized Study Plan? It is offered in CengageNOW as a diagnostic tool with a Pre-Test, Customized Study Plan, and Post-Test for each chapter. It offers valuable study assets to empower students to master concepts, such as QuizBowl, Games, Videos, Animated Example Evercises, eLectures, and Flashcards.

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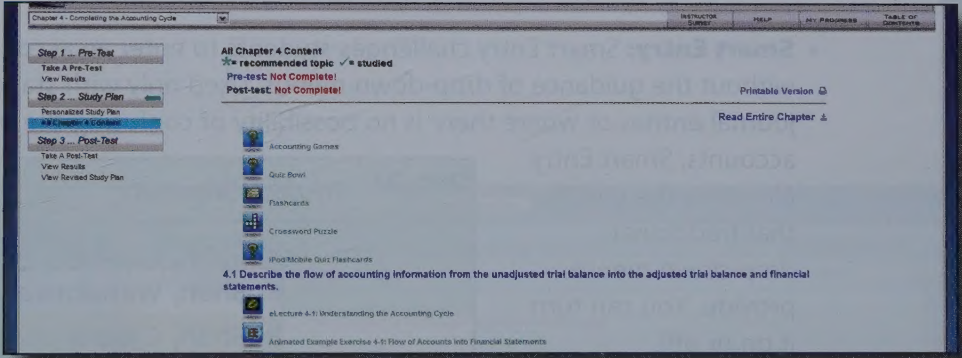

All Chapter 4 Content

* = recommended topic ✓ = studied

Pre-test: Not Complete!

Post-test: Not Complete!

4.1 Describe the flow of accounting information from the unadjusted trial balance into the adjusted trial balance and financial statements.

- Easy-to-use course management options offer flexibility and continuity from one semester to another.
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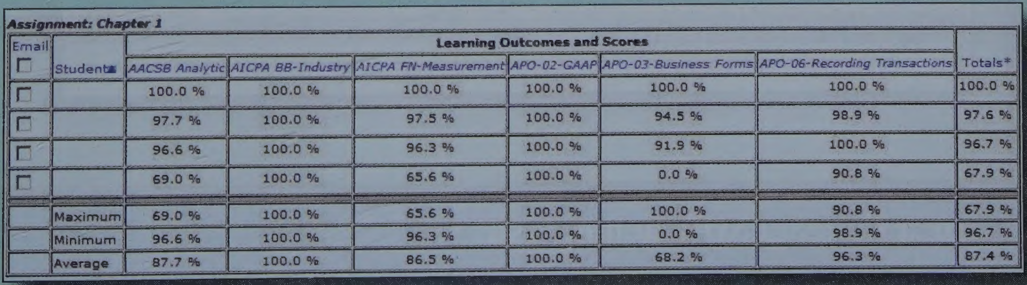

Assignment: Chapter 1

Email	Students	Learning Outcomes and Scores						Totals*
☐		AACSB Analytic	AICPA BB-Industry	AICPA FN-Measurement	APO-02-GAAP	APO-03-Business Forms	APO-06-Recording Transactions	
☐		100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %
☐		97.7 %	100.0 %	97.5 %	100.0 %	94.5 %	98.9 %	97.6 %
☐		96.6 %	100.0 %	96.3 %	100.0 %	91.9 %	100.0 %	96.7 %
☐		69.0 %	100.0 %	65.6 %	100.0 %	0.0 %	90.8 %	67.9 %
	Maximum	69.0 %	100.0 %	65.6 %	100.0 %	100.0 %	90.8 %	67.9 %
	Minimum	96.6 %	100.0 %	96.3 %	100.0 %	0.0 %	98.9 %	96.7 %
	Average	87.7 %	100.0 %	86.5 %	100.0 %	68.2 %	96.3 %	87.4 %

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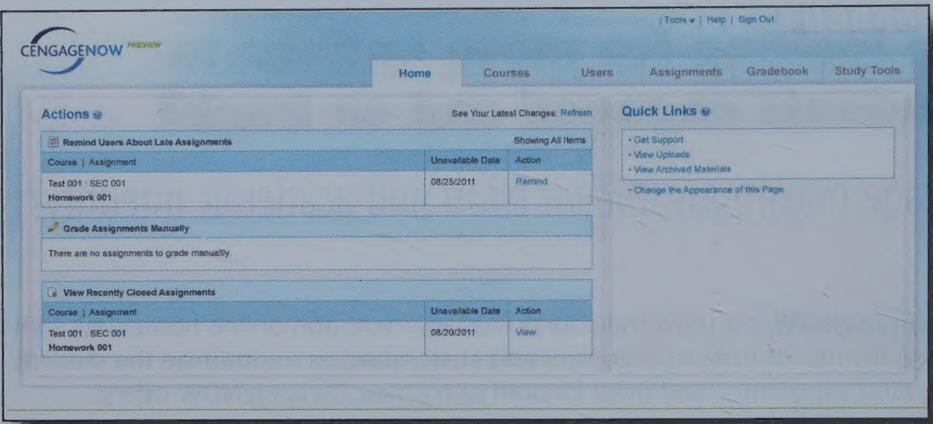


Remind Users About Late Assignments Showing All Items

Course | Assignment	Unavailable Date	Action
Test 001 : SEC 001 Homework 001	08/25/2011	Remind

Grade Assignments Manually

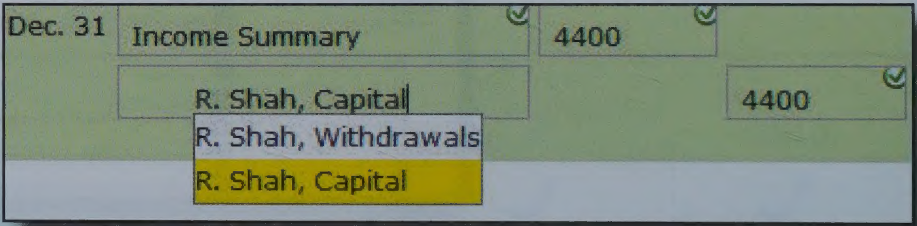
There are no assignments to grade manually.

View Recently Closed Assignments

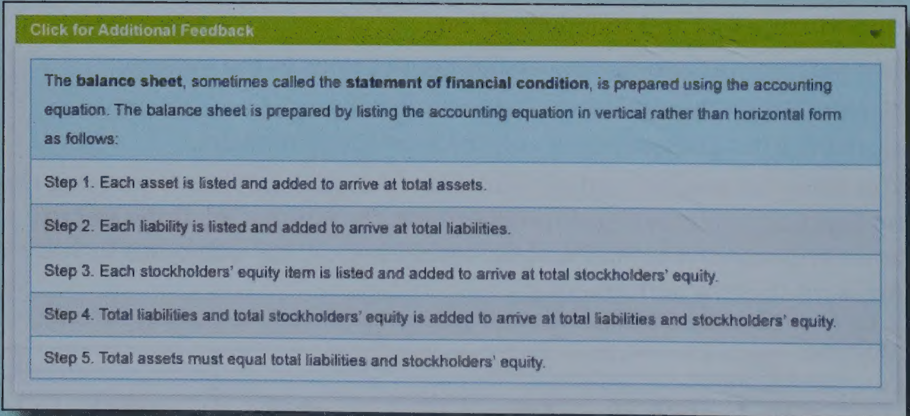
Course | Assignment	Unavailable Date	Action
Test 001 : SEC 001 Homework 001	08/20/2011	View

- **New Design:** CengageNOW has been re-designed to enhance your experience.

- **Smart Entry:** Smart Entry challenges students to enter an account title without the guidance of drop-down menus. Used only with standalone journal entries or where there is no possibility of confusing the order of accounts, Smart Entry alleviates the crutch that traditional drop-down menus provide. You can turn it on or off!



Dec. 31	Income Summary	4400	
	R. Shah, Capital		4400



The **balance sheet**, sometimes called the **statement of financial condition**, is prepared using the accounting equation. The balance sheet is prepared by listing the accounting equation in vertical rather than horizontal form as follows:

Step 1. Each asset is listed and added to arrive at total assets.

Step 2. Each liability is listed and added to arrive at total liabilities.

Step 3. Each stockholders' equity item is listed and added to arrive at total stockholders' equity.

Step 4. Total liabilities and total stockholders' equity is added to arrive at total liabilities and stockholders' equity.

Step 5. Total assets must equal total liabilities and stockholders' equity.

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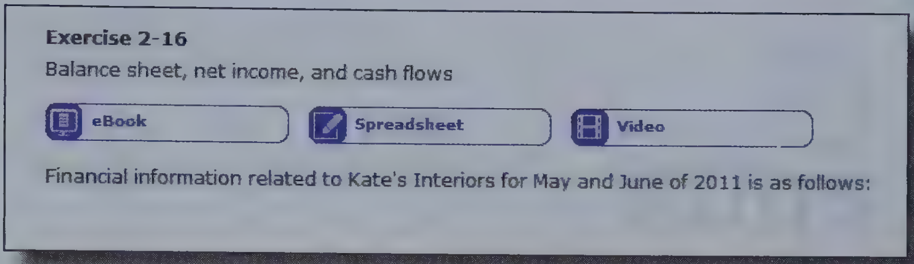


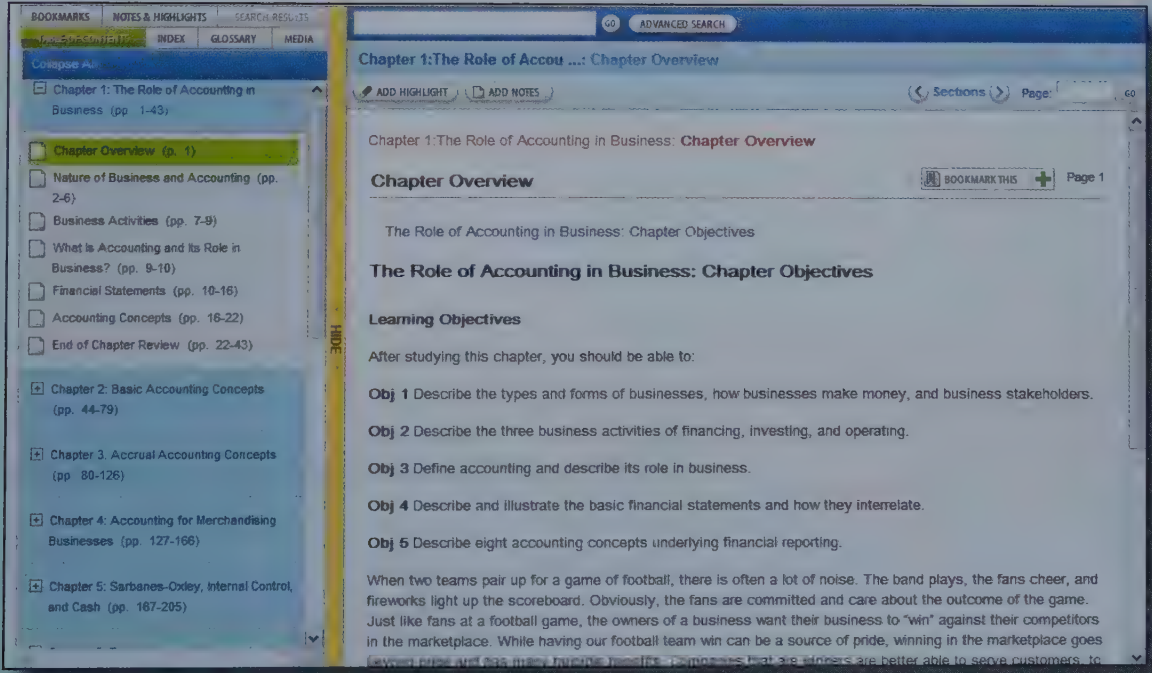
Exercise 2-16

Balance sheet, net income, and cash flows

Financial information related to Kate's Interiors for May and June of 2011 is as follows:

- **Longer problems have been sequenced in parts** to help students move at an easier pace, offering better feedback and navigation.

- **Enhanced eBook:** Students can highlight, take notes, and search the textbook easily and efficiently.



Chapter 1: The Role of Accounting in Business (pp. 1-43)

- Chapter Overview (p. 1)
- Nature of Business and Accounting (pp. 2-6)
- Business Activities (pp. 7-9)
- What is Accounting and Its Role in Business? (pp. 9-10)
- Financial Statements (pp. 10-16)
- Accounting Concepts (pp. 16-22)
- End of Chapter Review (pp. 22-43)

Chapter 2: Basic Accounting Concepts (pp. 44-79)

Chapter 3. Accrual Accounting Concepts (pp. 80-126)

Chapter 4: Accounting for Merchandising Businesses (pp. 127-166)

Chapter 5: Sarbanes-Oxley, Internal Control, and Cash (pp. 167-205)

Chapter 1:The Role of Accou ...: Chapter Overview

Chapter 1:The Role of Accounting in Business: **Chapter Overview**

Chapter Overview

The Role of Accounting in Business: Chapter Objectives

The Role of Accounting in Business: Chapter Objectives

Learning Objectives

After studying this chapter, you should be able to:

Obj 1 Describe the types and forms of businesses, how businesses make money, and business stakeholders.

Obj 2 Describe the three business activities of financing, investing, and operating.

Obj 3 Define accounting and describe its role in business.

Obj 4 Describe and illustrate the basic financial statements and how they interrelate.

Obj 5 Describe eight accounting concepts underlying financial reporting.

When two teams pair up for a game of football, there is often a lot of noise. The band plays, the fans cheer, and fireworks light up the scoreboard. Obviously, the fans are committed and care about the outcome of the game. Just like fans at a football game, the owners of a business want their business to "win" against their competitors in the marketplace. While having our football team win can be a source of pride, winning in the marketplace goes beyond pride and has many tangible benefits. Companies that are winners are better able to serve customers, to

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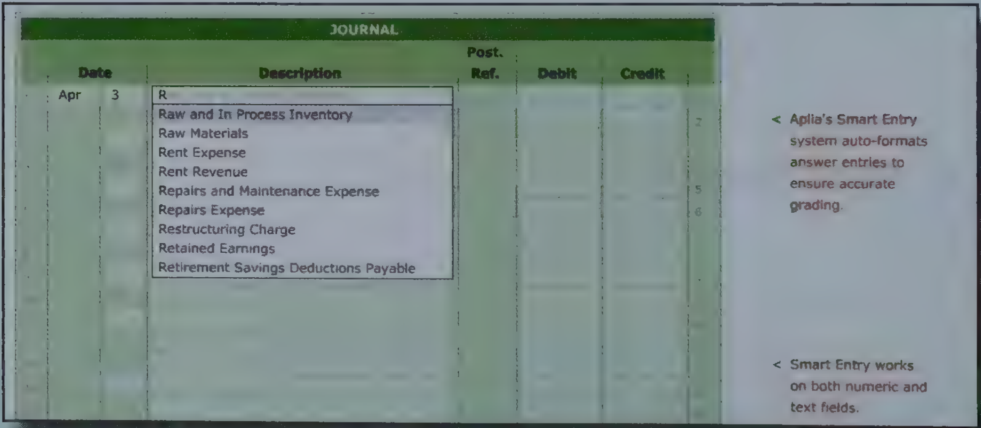

JOURNAL

Date		Description	Post. Ref.	Debit	Credit
Apr	3	R			

Raw and In Process Inventory
Raw Materials
Rent Expense
Rent Revenue
Repairs and Maintenance Expense
Repairs Expense
Restructuring Charge
Retained Earnings
Retirement Savings Deductions Payable

< Aplia's Smart Entry system auto-formats answer entries to ensure accurate grading.

< Smart Entry works on both numeric and text fields.

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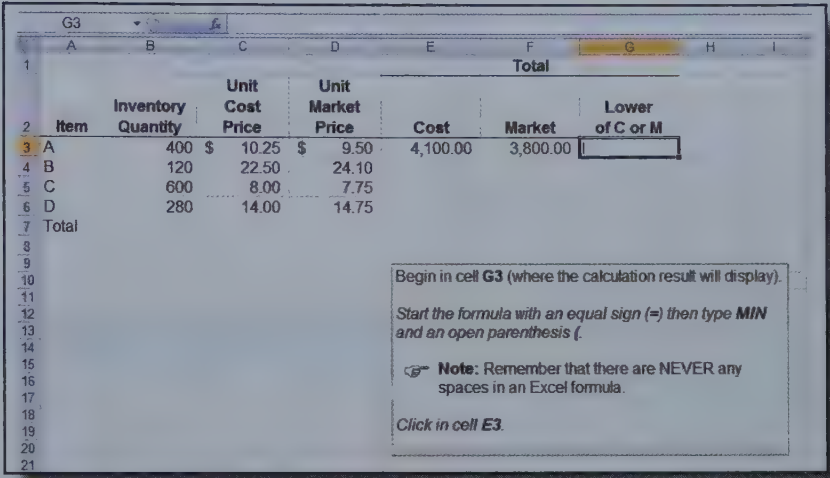
Warren/Reeve/Duchac Delivers Two New Innovative Offerings

NEW

Try It! Tutorials: These hands-on Excel tutorials are posted online and show students how to solve accounting problems using Excel. Students practice accounting and manipulate spreadsheets using basic Excel formulas in a simple, step-by-step format. The tutorials walk students through the Excel Success example within the chapter to help reinforce the accounting concept.



Item	Inventory Quantity	Unit Cost Price	Unit Market Price	Total Cost	Total Market	Lower of C or M
A	400	$ 10.25	$ 9.50	4,100.00	3,800.00	
B	120	22.50	24.10			
C	600	8.00	7.75			
D	280	14.00	14.75			
Total						

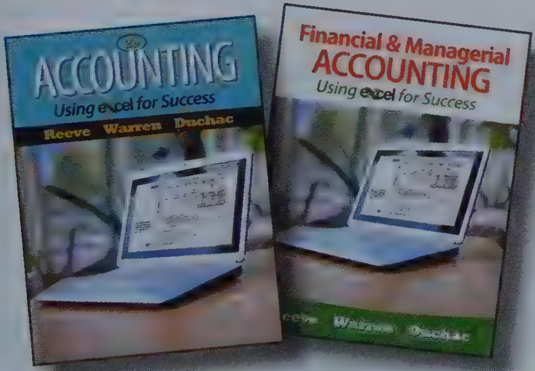
Begin in cell **G3** (where the calculation result will display).

*Start the formula with an equal sign (=) then type **MIN** and an open parenthesis (.*

Note: Remember that there are NEVER any spaces in an Excel formula.

*Click in cell **E3**.*

Available only with. . .



4 Steps to Learning Accounting Using Excel:

1. Read the accounting concept and illustration.
2. Follow the same concept using the Excel Success example.
3. Practice using the "Try It!" Tutorial online.
4. Apply knowledge by completing the Excel Success problems for homework.

6 Formulas + 4 Steps = Excel Success.

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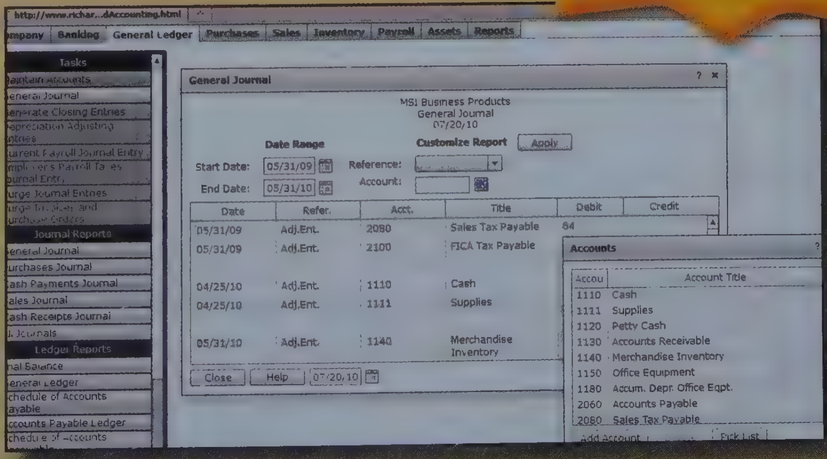


MSI Business Products
General Journal
07/20/10

Date Range

Start Date: 05/31/09

End Date: 05/31/10

Reference:

Account:

Date	Refer.	Acct.	Title	Debit	Credit
05/31/09	Adj.Ent.	2080	Sales Tax Payable	64	
05/31/09	Adj.Ent.	2100	FICA Tax Payable		
04/25/10	Adj.Ent.	1110	Cash		
04/25/10	Adj.Ent.	1111	Supplies		
05/31/10	Adj.Ent.	1140	Merchandise Inventory		

07/20/10

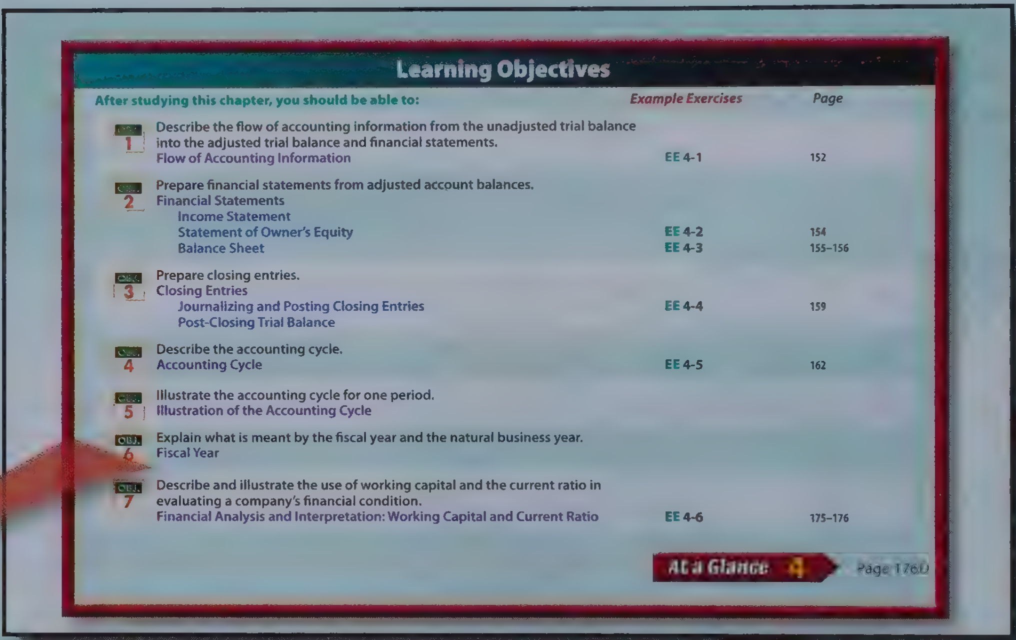
Accounts

Accou	Account Title
1110	Cash
1111	Supplies
1120	Petty Cash
1130	Accounts Receivable
1140	Merchandise Inventory
1150	Office Equipment
1180	Accum. Depr. Office Eqpt.
2060	Accounts Payable
2080	Sales Tax Payable

Complete Learning System

Warren/Reeve/Duchac delivers **a complete learning system built on clear examples.** This system helps students take ownership of the educational process in accounting to activate learning. In the textbook you will find:

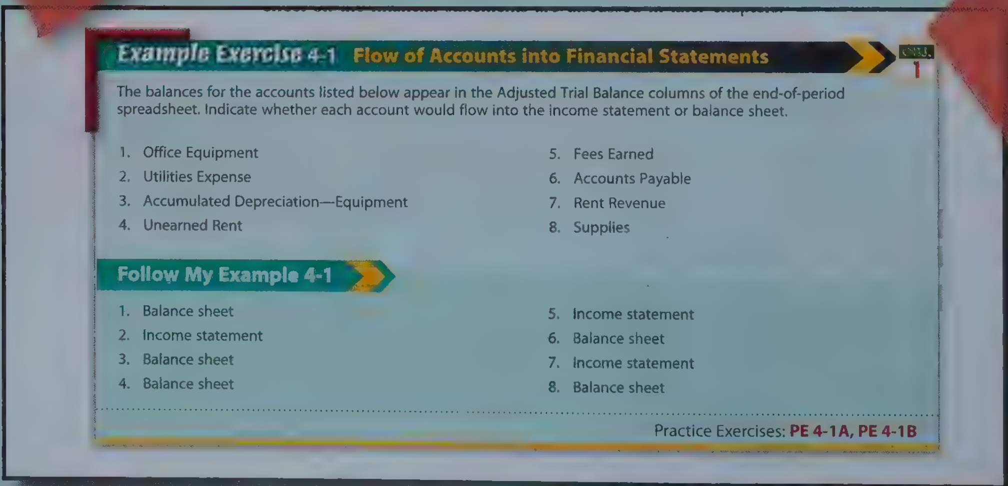
- **A map of learning outcomes and topics** at the beginning of every chapter helps students find information quickly. It lists the page number and related Example Exercise for students to reference.



Learning Objectives

	After studying this chapter, you should be able to:	*Example Exercises*	*Page*
OBJ. 1	Describe the flow of accounting information from the unadjusted trial balance into the adjusted trial balance and financial statements. Flow of Accounting Information	EE 4-1	152
OBJ. 2	Prepare financial statements from adjusted account balances. Financial Statements Income Statement		
	Statement of Owner's Equity	EE 4-2	154
	Balance Sheet	EE 4-3	155–156
OBJ. 3	Prepare closing entries. Closing Entries Journalizing and Posting Closing Entries	EE 4-4	159
	Post-Closing Trial Balance		
OBJ. 4	Describe the accounting cycle. Accounting Cycle	EE 4-5	162
OBJ. 5	Illustrate the accounting cycle for one period. Illustration of the Accounting Cycle		
OBJ. 6	Explain what is meant by the fiscal year and the natural business year. Fiscal Year		
OBJ. 7	Describe and illustrate the use of working capital and the current ratio in evaluating a company's financial condition. Financial Analysis and Interpretation: Working Capital and Current Ratio	EE 4-6	175–176

At a Glance 4 Page 176D



Example Exercise 4-1 Flow of Accounts into Financial Statements OBJ. 1

The balances for the accounts listed below appear in the Adjusted Trial Balance columns of the end-of-period spreadsheet. Indicate whether each account would flow into the income statement or balance sheet.

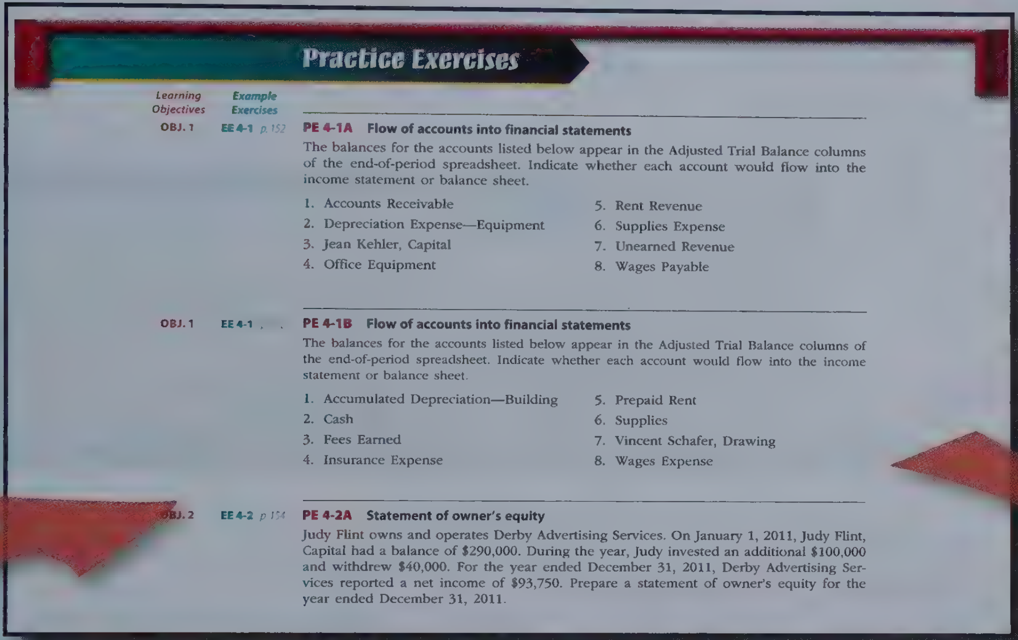
1. Office Equipment
2. Utilities Expense
3. Accumulated Depreciation—Equipment
4. Unearned Rent
5. Fees Earned
6. Accounts Payable
7. Rent Revenue
8. Supplies

Follow My Example 4-1

1. Balance sheet
2. Income statement
3. Balance sheet
4. Balance sheet
5. Income statement
6. Balance sheet
7. Income statement
8. Balance sheet

Practice Exercises: **PE 4-1A, PE 4-1B**

- **Example Exercises** (EE) throughout the chapter show students how to solve problems by reinforcing fundamental concepts. Students can follow these examples when completing Practice Exercises.


Practice Exercises

Learning Objectives	Example Exercises	
OBJ. 1	EE 4-1 p. 152	**PE 4-1A Flow of accounts into financial statements** The balances for the accounts listed below appear in the Adjusted Trial Balance columns of the end-of-period spreadsheet. Indicate whether each account would flow into the income statement or balance sheet.

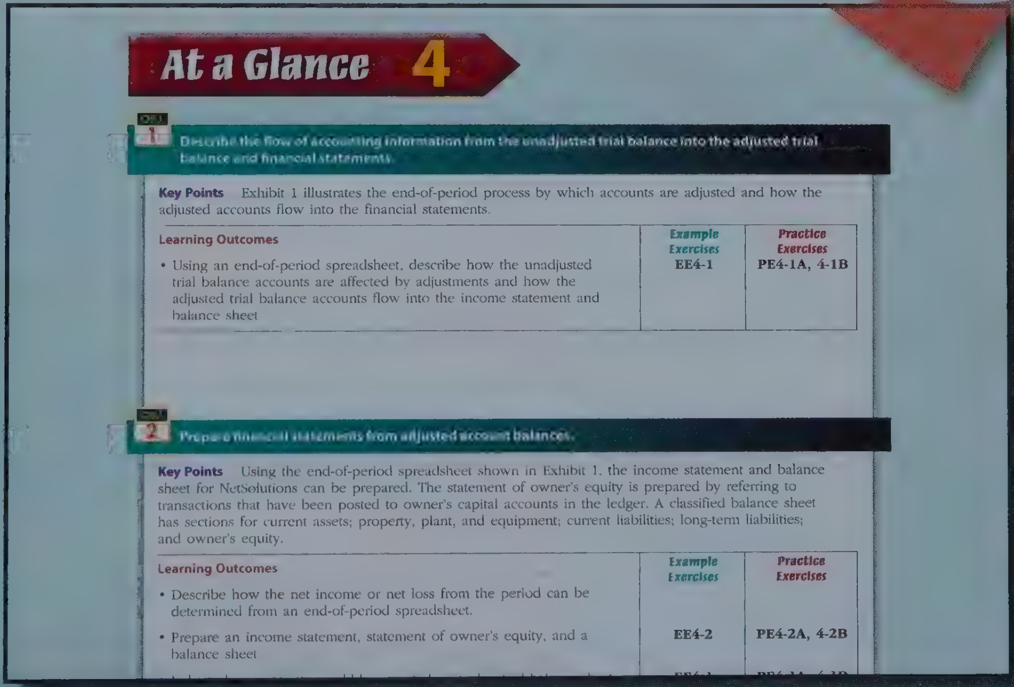
1. Accounts Receivable
2. Depreciation Expense—Equipment
3. Jean Kehler, Capital
4. Office Equipment
5. Rent Revenue
6. Supplies Expense
7. Unearned Revenue
8. Wages Payable

OBJ. 1	EE 4-1	**PE 4-1B Flow of accounts into financial statements** The balances for the accounts listed below appear in the Adjusted Trial Balance columns of the end-of-period spreadsheet. Indicate whether each account would flow into the income statement or balance sheet.

1. Accumulated Depreciation—Building
2. Cash
3. Fees Earned
4. Insurance Expense
5. Prepaid Rent
6. Supplies
7. Vincent Schafer, Drawing
8. Wages Expense

OBJ. 2	EE 4-2 p. 154	**PE 4-2A Statement of owner's equity** Judy Flint owns and operates Derby Advertising Services. On January 1, 2011, Judy Flint, Capital had a balance of $290,000. During the year, Judy invested an additional $100,000 and withdrew $40,000. For the year ended December 31, 2011, Derby Advertising Services reported a net income of $93,750. Prepare a statement of owner's equity for the year ended December 31, 2011.

- **Practice Exercises** (PE) are homework problems that refer back to the Example Exercises (EE) in the chapter. This encourages students to practice key concepts and procedures to help them understand.


At a Glance 4

OBJ. 1 Describe the flow of accounting information from the unadjusted trial balance into the adjusted trial balance and financial statements.

Key Points Exhibit 1 illustrates the end-of-period process by which accounts are adjusted and how the adjusted accounts flow into the financial statements.

Learning Outcomes	Example Exercises	Practice Exercises
• Using an end-of-period spreadsheet, describe how the unadjusted trial balance accounts are affected by adjustments and how the adjusted trial balance accounts flow into the income statement and balance sheet	EE4-1	PE4-1A, 4-1B

OBJ. 2 Prepare financial statements from adjusted account balances.

Key Points Using the end-of-period spreadsheet shown in Exhibit 1, the income statement and balance sheet for NetSolutions can be prepared. The statement of owner's equity is prepared by referring to transactions that have been posted to owner's capital accounts in the ledger. A classified balance sheet has sections for current assets; property, plant, and equipment; current liabilities; long-term liabilities; and owner's equity.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe how the net income or net loss from the period can be determined from an end-of-period spreadsheet.		
• Prepare an income statement, statement of owner's equity, and a balance sheet	EE4-2	PE4-2A, 4-2B

- **At-a-Glance chapter summary** helps students stay on track, whether they are studying for an exam or seeking clarification.

Engaging Examples Make Accounting Relevant

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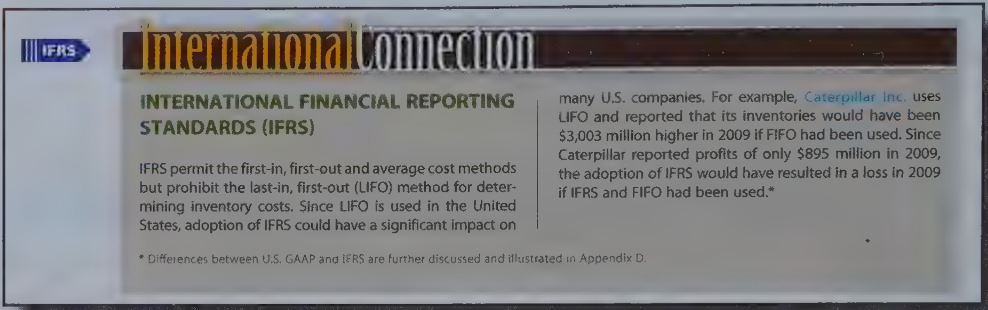
- **International Connection** features help give students an awareness of the potential IFRS impact on accounting principles, concepts, and terminology.



IFRS

International Connection

INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS)

IFRS permit the first-in, first-out and average cost methods but prohibit the last-in, first-out (LIFO) method for determining inventory costs. Since LIFO is used in the United States, adoption of IFRS could have a significant impact on many U.S. companies. For example, Caterpillar Inc. uses LIFO and reported that its inventories would have been $3,003 million higher in 2009 if FIFO had been used. Since Caterpillar reported profits of only $895 million in 2009, the adoption of IFRS would have resulted in a loss in 2009 if IFRS and FIFO had been used.*

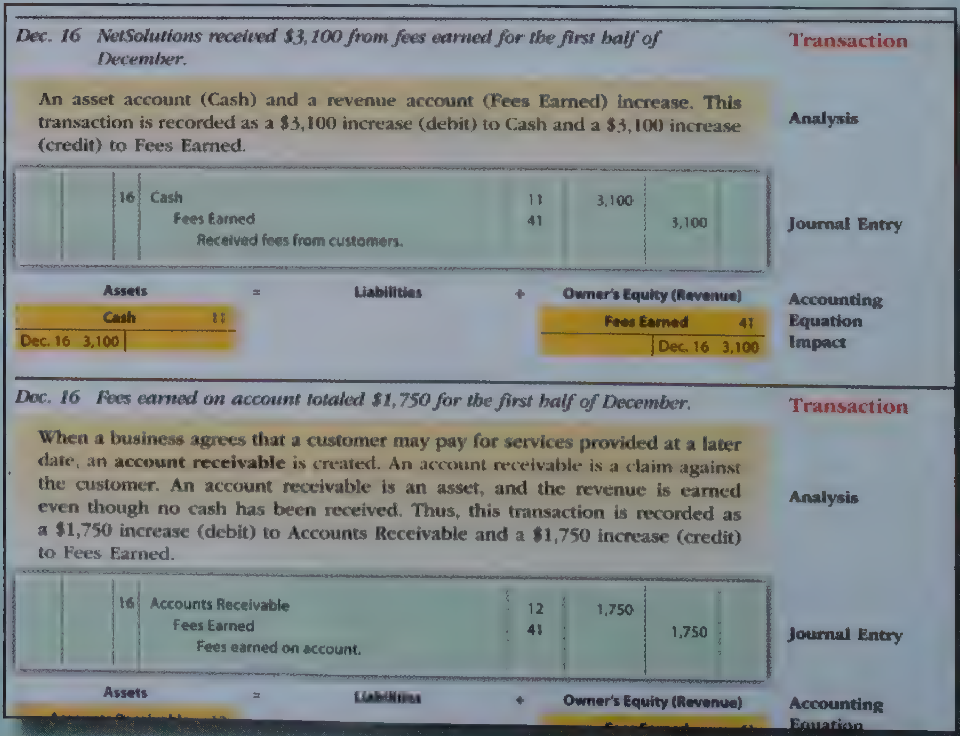
* Differences between U.S. GAAP and IFRS are further discussed and illustrated in Appendix D.

- An **IFRS Appendix** at the end of the textbook goes into greater detail, comparing U.S. GAAP with IFRS.

- **The IFRS PowerPoint Presentation and IFRS Video** will help instructors understand this complex topic and teach students in varying degrees.

NEW

- **Enhanced Transaction Analysis** in Chapter 2 helps students understand how to analyze and record transactions using T-Accounts.



Dec. 16 NetSolutions received $3,100 from fees earned for the first half of December. **Transaction**

An asset account (Cash) and a revenue account (Fees Earned) increase. This transaction is recorded as a $3,100 increase (debit) to Cash and a $3,100 increase (credit) to Fees Earned. **Analysis**

16	Cash	11	3,100	
	Fees Earned	41		3,100
	Received fees from customers.			

Journal Entry

Assets = Liabilities + Owner's Equity (Revenue)

Cash 11
Dec. 16 3,100

Fees Earned 41
Dec. 16 3,100

Accounting Equation Impact

Dec. 16 Fees earned on account totaled $1,750 for the first half of December. **Transaction**

When a business agrees that a customer may pay for services provided at a later date, an **account receivable** is created. An account receivable is a claim against the customer. An account receivable is an asset, and the revenue is earned even though no cash has been received. Thus, this transaction is recorded as a $1,750 increase (debit) to Accounts Receivable and a $1,750 increase (credit) to Fees Earned. **Analysis**

16	Accounts Receivable	12	1,750	
	Fees Earned	41		1,750
	Fees earned on account.			

Journal Entry

Assets = Liabilities + Owner's Equity (Revenue)

Accounting Equation

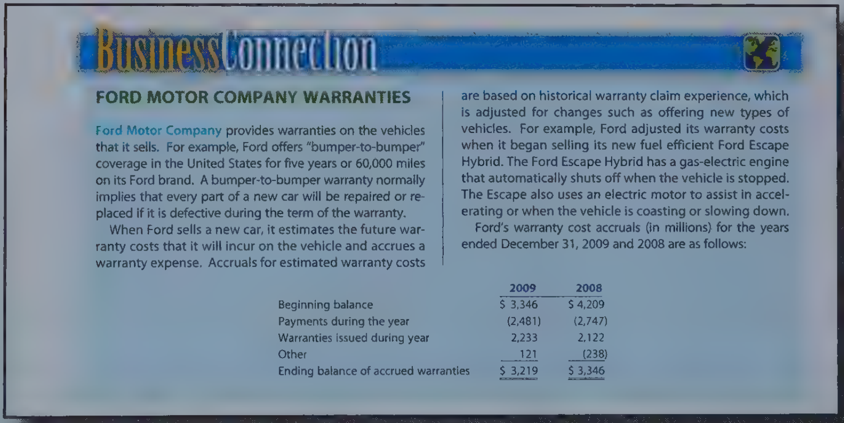
NEW

- **Mornin' Joe Financial Statements** show students the big picture of accounting using an entire set of financial statements specifically related to each chapter. New to this edition and right after the Fair Value and Investments chapter, the authors demonstrate what happens when Mornin' Joe goes international under IFRS guidelines. This helps students visualize the major differences between U.S. GAAP and IFRS.

F·A·I

- The "**Financial Analysis and Interpretation**" coverage at the end of each financial accounting chapter introduces relevant key ratios. Students connect with the business environment as they learn how stakeholders interpret financial reports.

- Students get a close-up look at how accounting operates in the marketplace through a variety of items in the margins and in the "**Business Connections**" boxed features.



Business Connection

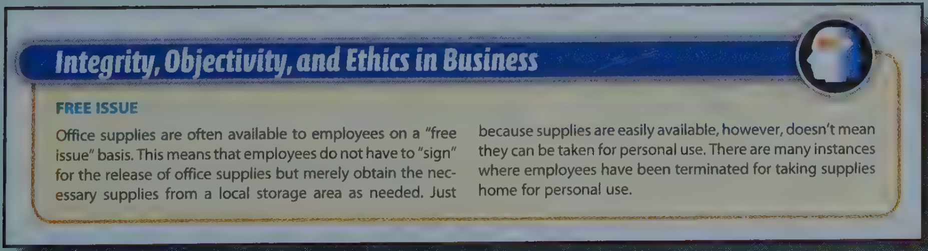
FORD MOTOR COMPANY WARRANTIES

Ford Motor Company provides warranties on the vehicles that it sells. For example, Ford offers "bumper-to-bumper" coverage in the United States for five years or 60,000 miles on its Ford brand. A bumper-to-bumper warranty normally implies that every part of a new car will be repaired or replaced if it is defective during the term of the warranty.

When Ford sells a new car, it estimates the future warranty costs that it will incur on the vehicle and accrues a warranty expense. Accruals for estimated warranty costs are based on historical warranty claim experience, which is adjusted for changes such as offering new types of vehicles. For example, Ford adjusted its warranty costs when it began selling its new fuel efficient Ford Escape Hybrid. The Ford Escape Hybrid has a gas-electric engine that automatically shuts off when the vehicle is stopped. The Escape also uses an electric motor to assist in accelerating or when the vehicle is coasting or slowing down.

Ford's warranty cost accruals (in millions) for the years ended December 31, 2009 and 2008 are as follows:

	2009	2008
Beginning balance	$ 3,346	$ 4,209
Payments during the year	(2,481)	(2,747)
Warranties issued during year	2,233	2,122
Other	121	(238)
Ending balance of accrued warranties	$ 3,219	$ 3,346



Integrity, Objectivity, and Ethics in Business

FREE ISSUE

Office supplies are often available to employees on a "free issue" basis. This means that employees do not have to "sign" for the release of office supplies but merely obtain the necessary supplies from a local storage area as needed. Just because supplies are easily available, however, doesn't mean they can be taken for personal use. There are many instances where employees have been terminated for taking supplies home for personal use.

- "**Integrity, Objectivity, and Ethics in Business**" cases in each chapter help students develop their ethical compass.

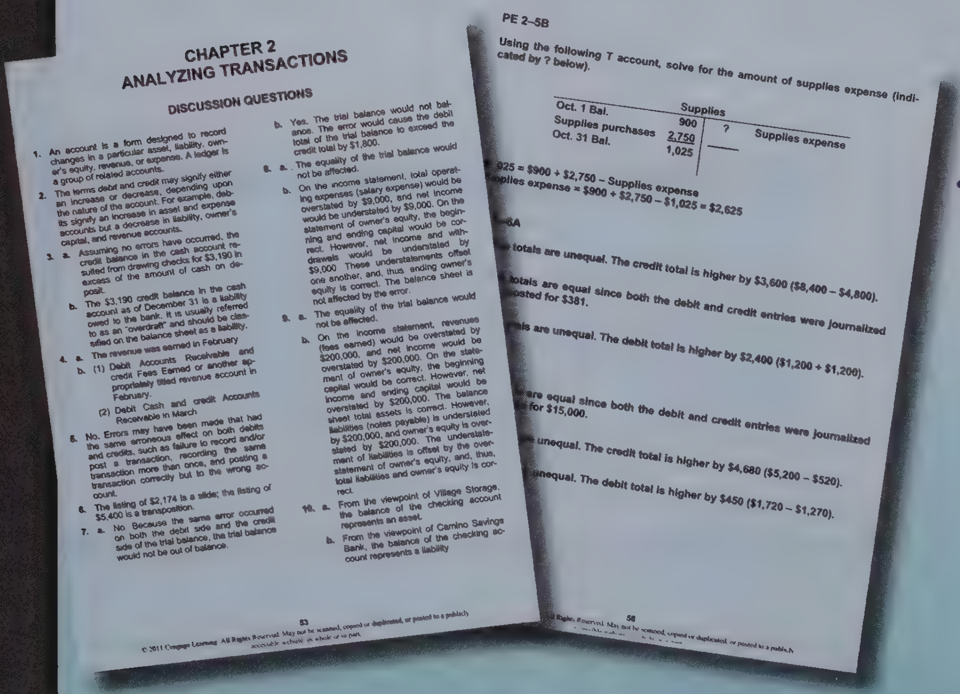
- Students follow a fictitious company in Chapters 1-6, **NetSolutions**, which demonstrates a variety of transactions.

Warren/Reeve/Duchac Delivers Ease of Use

Instuctor Resources

With every revision, the authors update 100% of the end-of-chapter problems to keep the material fresh and engaging for students. From planning your course to assessing students, Warren/Reeve/Duchac's market-leading resources offer a highly engaging teaching and learning experience!

- The **Instructor's Resource CD** includes the PowerPoint® Presentations, Instructor's Manual, Solutions Manual, Test Bank, ExamView®, Achievement Tests, and Excel® Template Solutions.
- The **Test Bank** includes more than 2,800 True/False questions, Multiple-Choice questions, and Problems, each marked with a difficulty level, chapter objective, and standard course outcomes. All of the questions were reviewed by a committee actively using the test bank.



CHAPTER 2
ANALYZING TRANSACTIONS

DISCUSSION QUESTIONS

1. An account is a form designed to record changes in a particular asset, liability, owner's equity, revenue, or expense. A ledger is a group of related accounts.
2. The terms debit and credit may signify either an increase or decrease, depending upon the nature of the account. For example, debits signify an increase in asset and expense accounts but a decrease in liability, owner's capital, and revenue accounts.
3. a. Assuming no errors have occurred, the credit balance in the cash account resulted from drawing checks for $3,190 in excess of the amount of cash on deposit.
   b. The $3,190 credit balance in the cash account as of December 31 is a liability owed to the bank. It is usually referred to as an "overdraft" and should be classified on the balance sheet as a liability.
4. a. The revenue was earned in February
   b. (1) Debit Accounts Receivable and credit Fees Earned or another appropriately titled revenue account in February.
      (2) Debit Cash and credit Accounts Receivable in March
5. No. Errors may have been made that had the same erroneous effect on both debits and credits, such as failure to record and/or post a transaction, recording the same transaction more than once, and posting a transaction correctly but to the wrong account.
6. The listing of $2,174 is a slide; the listing of $5,400 is a transposition.
7. a. No. Because the same error occurred on both the debit side and the credit side of the trial balance, the trial balance would not be out of balance.
   b. Yes. The trial balance would not balance. The error would cause the debit total of the trial balance to exceed the credit total by $1,800.
8. a. The equality of the trial balance would not be affected.
   b. On the income statement, total operating expenses (salary expense) would be overstated by $9,000, and net income would be understated by $9,000. On the statement of owner's equity, the beginning and ending capital would be correct. However, net income and withdrawals would be understated by $9,000. These understatements offset one another, and, thus, ending owner's equity is correct. The balance sheet is not affected by the error.
9. a. The equality of the trial balance would not be affected.
   b. On the income statement, revenues (fees earned) would be overstated by $200,000, and net income would be overstated by $200,000. On the statement of owner's equity, the beginning capital would be correct. However, net income and ending capital would be overstated by $200,000. The balance sheet total assets is correct. However, liabilities (notes payable) is understated by $200,000, and owner's equity is overstated by $200,000. The understatement of liabilities is offset by the overstatement of owner's equity, and, thus, total liabilities and owner's equity is correct.
10. a. From the viewpoint of Village Storage, the balance of the checking account represents an asset.
    b. From the viewpoint of Camino Savings Bank, the balance of the checking account represents a liability

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PE 2–5B

Using the following T account, solve for the amount of supplies expense (indicated by ? below).

	Supplies		
Oct. 1 Bal.	900	?	Supplies expense
Supplies purchases	2,750		
Oct. 31 Bal.	1,025		

025 = $900 + $2,750 – Supplies expense
plies expense = $900 + $2,750 – $1,025 = $2,625

6A

totals are unequal. The credit total is higher by $3,600 ($8,400 – $4,800).

totals are equal since both the debit and credit entries were journalized
sted for $381.

is are unequal. The debit total is higher by $2,400 ($1,200 + $1,200).

are equal since both the debit and credit entries were journalized
for $15,000.

unequal. The credit total is higher by $4,680 ($5,200 – $520).

unequal. The debit total is higher by $450 ($1,720 – $1,270).

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- The **Solutions Manual** contains answers to all exercises, problems, and activities that appear in the text. The solutions are author-written and verified multiple times for numerical accuracy and consistency with the core text.
- The **Instructor's Manual** contains a number of resources designed to aid instructors as they prepare lectures, assign homework, and teach in the classroom. Resources include a brief synopsis and a list of objectives, Key Terms, Ideas for Class Discussion, Lecture Aids, Demonstration Problems, Group Learning Activities, Exercises and Problems for Reinforcement, and Internet Activities. Also, Suggested Approaches are included that incorporate many modern teaching initiatives being stressed in higher education today, including active learning, collaborative learning, critical thinking, and writing across the curriculum.

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NEW

Practice Sets

- **Luxurious Spa** (formerly Bath Designs) This practice set is set up as a business that designs and manufactures custom bathroom storage cabinets and sauna units. Luxurious Spa uses only the general ledger.
- **Glorious Garden Lawn Service** (formerly Leaping Lizards Lawn Care) This practice set includes a narrative of transactions. Glorious Garden can be completed using either journal entries or the accounting equation.
- **Pumping Iron** (formerly Fitness City) This practice set includes sub- and general ledgers, checkbook register, payroll register, and tracking of employee earnings for a retail and wholesale seller of fitness equipment.
- **Lucy's Doggie Care** (formerly Danielle's Dog Care) This practice set studies a small business offering pet daycare services; pet bathing and grooming; and retail sales of specialty pet products.
- **Digital Revolution Services** (formerly Star Computer Sales & Services) This practice set is a retail business dealing in sales of computers and peripherals.
- **Art by Design** (formerly Artistic Décor) This practice is an interior design firm that also purchases and sells antique furniture.

Other Student Resources

- The author-written **Study Guide** provides students with Quiz and Test Hints, Matching questions, Fill-in-the-Blank questions (Parts A & B), Multiple-Choice questions, True/False questions, Exercises, and Problems for each chapter.
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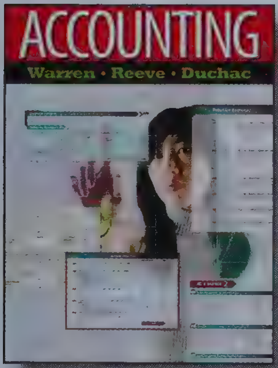

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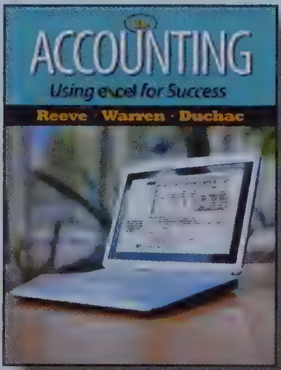

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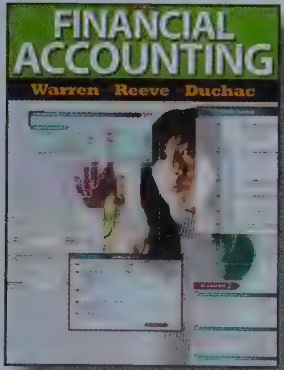

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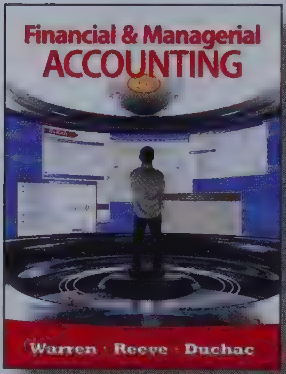

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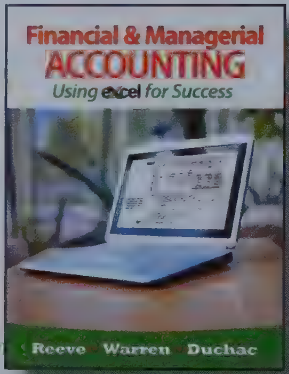

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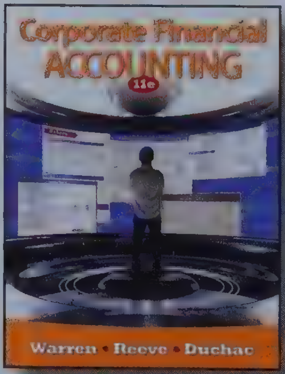

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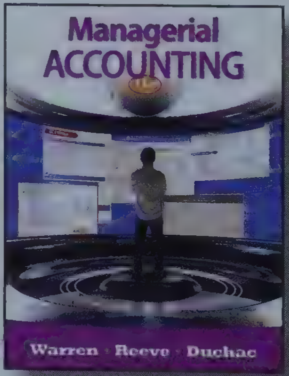

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REEVE WARREN DUCHAC

ACCOUNTING

USING EXCEL FOR SUCCESS

2e

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The Author Team

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Dr. James M. Reeve is Professor Emeritus of Accounting and Information Management at the University of Tennessee. Professor Reeve taught on the accounting faculty for 25 years, after graduating with his Ph.D. from Oklahoma State University. His teaching effort focused on undergraduate accounting principles and graduate education in the Master of Accountancy and Senior Executive MBA programs. Beyond this, Professor Reeve is also very active in the Supply Chain Certification program, which is a major executive education and research effort of the College. His research interests are varied and include work in managerial accounting, supply chain management, lean manufacturing, and information management. He has published over 40 articles in academic and professional journals, including the *Journal of Cost Management, Journal of Management Accounting Research, Accounting Review, Management Accounting Quarterly, Supply Chain Management Review,* and *Accounting Horizons*. He has consulted or provided training around the world for a wide variety of organizations, including Boeing, Procter & Gamble, Norfolk Southern, Hershey Foods, Coca-Cola, and Sony. When not writing books, Professor Reeve plays golf and is involved in faith-based activities.

Carl S. Warren

Dr. Carl S. Warren is Professor Emeritus of Accounting at the University of Georgia, Athens. Dr. Warren has taught classes at the University of Georgia, University of Iowa, Michigan State University, and University of Chicago. Professor Warren focused his teaching efforts on principles of accounting and auditing. He received his Ph.D. from Michigan State University and his B.B.A. and M.A. from the University of Iowa. During his career, Dr. Warren published numerous articles in professional journals, including *The Accounting Review, Journal of Accounting Research, Journal of Accountancy, The CPA Journal,* and *Auditing: A Journal of Practice & Theory*. Dr. Warren has served on numerous committees of the American Accounting Association, the American Institute of Certified Public Accountants, and the Institute of Internal Auditors. He has also consulted with numerous companies and public accounting firms. Warren's outside interests include playing handball, golfing, skiing, backpacking, and fly-fishing.

Jonathan Duchac

Dr. Jonathan Duchac is the Merrill Lynch and Co. Professor of Accounting and Director of the Program in Enterprise Risk Management at Wake Forest University. He earned his Ph.D. in accounting from the University of Georgia and currently teaches introductory and advanced courses in financial accounting. Dr. Duchac has received a number of awards during his career, including the Wake Forest University Outstanding Graduate Professor Award, the T.B. Rose Award for Instructional Innovation, and the University of Georgia Outstanding Teaching Assistant Award. In addition to his teaching responsibilities, Dr. Duchac has served as Accounting Advisor to Merrill Lynch Equity Research, where he worked with research analysts in reviewing and evaluating the financial reporting practices of public companies. He has testified before the U.S. House of Representatives, the Financial Accounting Standards Board, and the Securities and Exchange Commission and has worked with a number of major public companies on financial reporting and accounting policy issues. In addition to his professional interests, Dr. Duchac is Treasurer of The Special Children's School of Winston-Salem, a private, nonprofit developmental day school serving children with special needs. Dr. Duchac is an avid long-distance runner, mountain biker, and snow skier. His recent events include the Grandfather Mountain Marathon, the Black Mountain Marathon, the Shut-In Ridge Trail run, and NO MAAM (Nocturnal Overnight Mountain Bike Assault on Mount Mitchell).

A History of Success

For nearly **85** years, *Accounting* has been used effectively to teach generations of businessmen and women. The text has been used by millions of business students. For many, this book provides the only exposure to accounting principles that they will ever receive. As the most successful business textbook of all time, it continues to introduce students to accounting through a variety of time-tested ways.

The previous edition, 11e, started a new journey into learning more about the changing needs of accounting students through a variety of new and innovative research and development methods. Our Blue Sky Workshops brought accounting faculty from all over the country into our book development process in a very direct and creative way. Many of the features and themes present in this text are a result of the collaboration and countless conversations we have had with accounting instructors over the last several years. 11e continues to build on this philosophy and strives to be reflective of the suggestions and feedback we receive from instructors and students on an ongoing basis. We are very happy with the results and think you will be pleased with the improvements we have made to the text.

The original author of *Accounting*, James McKinsey, could not have imagined the success and influence this text has enjoyed or that his original vision would continue to lead the market into the twenty-first century. As the current authors, we appreciate the responsibility of protecting and enhancing this vision, while continuing to refine it to meet the changing needs of students and instructors. Always in touch with a tradition of excellence but never satisfied with yesterday's success, this edition enthusiastically embraces a changing environment and continues to proudly lead the way. We sincerely thank our many colleagues who have helped to make it happen.

Carl S. Warren

Jonathan Duchac

"The teaching of accounting is no longer designed to train professional accountants only. With the growing complexity of business and the constantly increasing difficulty of the problems of management, it has become essential that everyone who aspires to a position of responsibility should have a knowledge of the fundamental principles of accounting."

—James O. McKinsey, Author, first edition, 1929

New to the 2nd Edition

NEW

Textbooks continue to play an invaluable role in the teaching and learning environments. Continuing our focus from previous editions, we reached out to accounting instructors in an effort to improve the textbook presentation. Our research informed us of the need to remain current in the areas of emerging topics/trends and to continue to look for ways to make the book more accessible to students. The results of this collaboration with hundreds of accounting instructors are reflected in the following major improvements made to the 2nd edition:

Unique Excel Success Learning System:

6 Formulas + 4 Steps = Excel Success

In developing this learning system, instructors expressed:

- Excel is the most important software students will use in business.
- Employers want graduates to know Excel.
- Many instructors *do not* use Excel because they believe they do not have the time to teach it in class.
- Many instructors *do* use Excel to learn and reinforce accounting concepts.

With the increased development of software applications, this textbook introduces students to a new learning approach. ***Accounting Using Excel for Success*** **effectively uses Excel to teach accounting in an easy way**.

The Power of Six Simple Formulas

By learning just six simple Excel formulas, students can solve most accounting problems, from posting a basic journal entry to calculating the internal rate of return. Here are the six basic formulas that are covered in the text:

1. =SUM
2. =MIN
3. =VLOOKUP (one time)
4. =IF (one time)
5. =IRR (one time) and =PV (one time)
6. $A$5 (absolute and relative references)

Four Easy Steps

The innovative four-step system encourages students to:

1. Read the accounting concept.
2. Follow along as the Excel Success Example steps through how to solve the accounting concept problem.
3. Practice using the "Try It" Tutorial.
4. Apply knowledge by completing the Excel Success Special Activity.

Here is a depiction of the four steps in the Excel Success Learning System:

Step 1

Step 1 is to Read and Learn the Accounting Concept. You can introduce the concept in lecture, and your students will read the concept in the textbook. This example is Valuation at Lower of Cost or Market.

Valuation at Lower of Cost or Market

If the cost of replacing inventory is lower than its recorded purchase cost, the **lower-of-cost-or-market (LCM) method** is used to value the inventory. *Market*, as used in *lower of cost or market*, is the cost to replace the inventory. The market value is based on normal quantities that would be purchased from suppliers.

The lower-of-cost-or-market method can be applied in one of three ways. The cost, market price, and any declines could be determined for the following:

1. Each item in the inventory.
2. Each major class or category of inventory.
3. Total inventory as a whole.

The amount of any price decline is included in the cost of merchandise sold. This, in turn, reduces gross profit and net income in the period in which the price declines occur. This matching of price declines to the period in which they occur is the primary advantage of using the lower-of-cost-or-market method.

To illustrate, assume the following data for 400 identical units of Item A in inventory on December 31, 2010:

Unit purchased cost	$10.25
Replacement cost on December 31, 2010	9.50

Since Item A could be replaced at $9.50 a unit, $9.50 is used under the lower-of-cost-or-market method.

Exhibit 8 illustrates applying the lower-of-cost-or-market method to each inventory item (A, B, C, and D). As applied on an item-by-item basis, the total lower-of-cost-or-market is $15,070, which is a market decline of $450 ($15,520 − $15,070). This market decline of $450 is included in the cost of merchandise sold.

In Exhibit 8, Items A, B, C, and D could be viewed as a class of inventory items. If the lower-of-cost-or-market method is applied to the class, the inventory would be valued at $15,472, which is a market decline of $48 ($15,520 − $15,472). Likewise, if Items A, B, C, and D make up the total inventory, the lower-of-cost-or-market method as applied to the total inventory would be the same amount, $15,472.

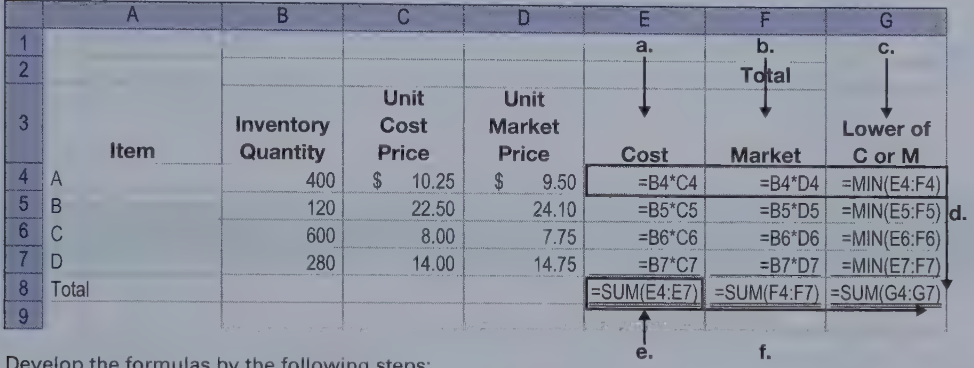
Step 2

Step 2 of Excel Success is to Reinforce the Accounting Concept Using the Excel Example:

- The illustration is re-created using Excel.
- The *formulas* are displayed, not the resulting *values.*
- Students use easy steps to understand how to create a basic Excel formula.

excel success

The lower of cost or market inventory schedule from Exhibit 8 can be developed on a spreadsheet as follows:



	A	B	C	D	E	F	G
1							
2						Total	
3	Item	Inventory Quantity	Unit Cost Price	Unit Market Price	Cost	Market	Lower of C or M
4	A	400	$ 10.25	$ 9.50	=B4*C4	=B4*D4	=MIN(E4:F4)
5	B	120	22.50	24.10	=B5*C5	=B5*D5	=MIN(E5:F5)
6	C	600	8.00	7.75	=B6*C6	=B6*D6	=MIN(E6:F6)
7	D	280	14.00	14.75	=B7*C7	=B7*D7	=MIN(E7:F7)
8	Total				=SUM(E4:E7)	=SUM(F4:F7)	=SUM(G4:G7)
9							

Develop the formulas by the following steps:

a. Enter in cell E4 the formula for the total cost, =B4*C4.
b. Enter in cell F4 the formula for the total market, =B4*D4.
c. Enter in cell G4 a =MIN function to calculate the lower of cost or market, as follows:

=MIN(E4:F4)

This function will return the minimum value within the range of cells from E4 to F4.

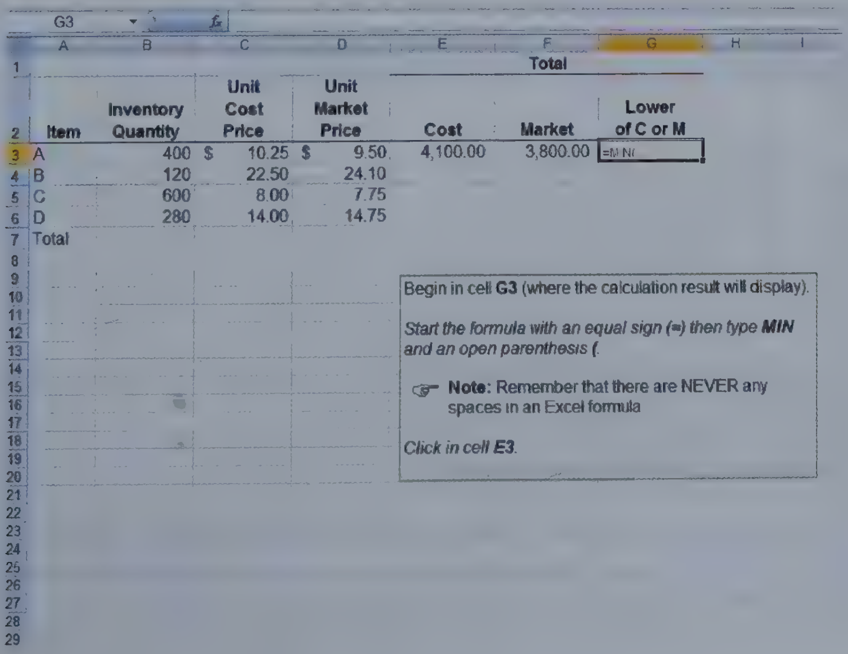
d. Copy E4:G4 to E5:G7.
e. Enter in E8 a formula to sum the column, =SUM(E4:E7)
f. Copy E8 to F8:G8

Copy cells by using the fill handle in the corner of the cell to be copied and dragging to the target cells.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Step 3

Step 3 is the Try It Tutorial. This is a hands-on tutorial that walks the student through the in-chapter example. Students actively participate in the learning process using the Try It Tutorial. The Try It Tutorials are available to students 24/7. It's just that easy! Students receive an access code automatically with a new copy of the textbook that provides them access to the Try It Tutorials. The Tutorials are also built into CengageNOW, our premier online homework solution.



	A	B	C	D	E	F	G
1					Total		
2	Item	Inventory Quantity	Unit Cost Price	Unit Market Price	Cost	Market	Lower of C or M
3	A	400	$ 10.25	$ 9.50	4,100.00	3,800.00	=MIN(
4	B	120	22.50	24.10			
5	C	600	8.00	7.75			
6	D	280	14.00	14.75			
7	Total						

Begin in cell **G3** (where the calculation result will display).

*Start the formula with an equal sign (=) then type **MIN** and an open parenthesis (*

☞ **Note:** Remember that there are NEVER any spaces in an Excel formula

*Click in cell **E3**.*

Step 4

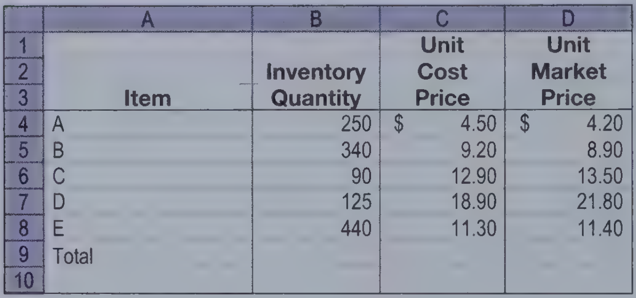
Step 4 is the Excel Success End-of-Chapter Problem. At this point, students have learned the accounting concept, reinforced it in Excel, and learned how to create a simple Excel formula with the Try It Tutorial. Now it's time for them to complete their homework.

Excel Success Special Activities

excel success

SA 7-1 Lower of cost or market

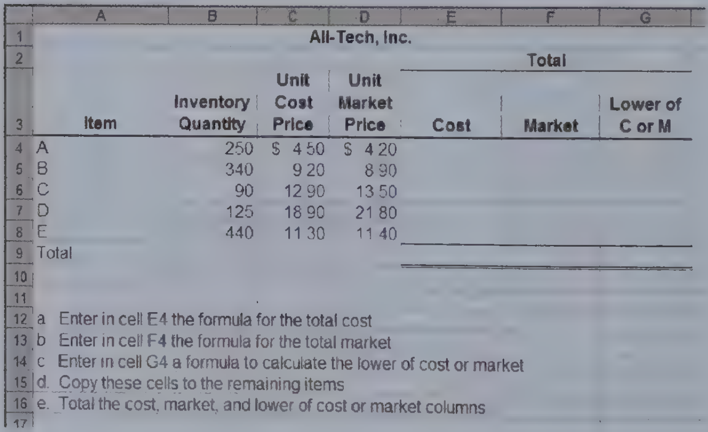
All-Tech, Inc., has five inventory items with the following quantities, unit costs, and unit market values:



	A	B	C	D
1			Unit	Unit
2		Inventory	Cost	Market
3	Item	Quantity	Price	Price
4	A	250	$ 4.50	$ 4.20
5	B	340	9.20	8.90
6	C	90	12.90	13.50
7	D	125	18.90	21.80
8	E	440	11.30	11.40
9	Total			
10				

a. Open the spreadsheet file name *SA7-1_2e.*
b. Complete the spreadsheet by determining the lower of cost or market valuation for inventory.
c. When you have completed the inventory table, perform a "save as," replacing the entire file name with the following:
SA7-1_2e[your first name initial]_[your last name]

Here is what the problem looks like:



	A	B	C	D	E	F	G
1			All-Tech, Inc.				
2						Total	
3	Item	Inventory Quantity	Unit Cost Price	Unit Market Price	Cost	Market	Lower of C or M
4	A	250	$ 4 50	$ 4 20			
5	B	340	9 20	8 90			
6	C	90	12 90	13 50			
7	D	125	18 90	21 80			
8	E	440	11 30	11 40			
9	Total						
10							
11							
12	a Enter in cell E4 the formula for the total cost						
13	b Enter in cell F4 the formula for the total market						
14	c Enter in cell G4 a formula to calculate the lower of cost or market						
15	d. Copy these cells to the remaining items						
16	e. Total the cost, market, and lower of cost or market columns						
17							

Students open an Excel file and develop the formulas, learning how to solve this accounting problem. At any time, students can refer to the Excel Success example within the chapter to help them successfully complete the problem.

International Financial Reporting Standards (IFRS)

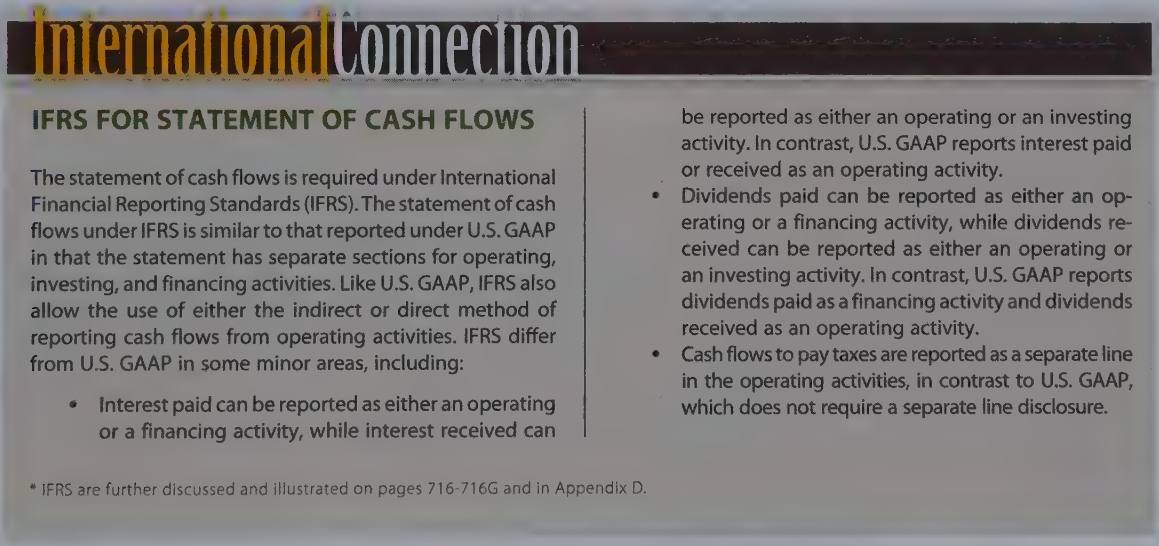
IFRS is on the minds of many accounting educators of today. While the future is still unclear, our research indicates a growing need to provide more basic awareness of these standards within the text. We have incorporated some elements of IFRS throughout the text as appropriate to provide this level of awareness, being careful not to encroach upon the core GAAP principles that remain the hallmark focus of the book. These elements include icons that have been placed throughout the financial chapters which point to specific IFRS-related content, outlined with more detail in Appendix D. This table outlines the IFRS impact on the accounting concept.

IFRS IFRS

International Connection

International Connection features highlight IFRS topics from a real-world perspective and appear in Chapters 1, 4, 7, 10, 13, and 14.

IFRS



International Connection

IFRS FOR STATEMENT OF CASH FLOWS

The statement of cash flows is required under International Financial Reporting Standards (IFRS). The statement of cash flows under IFRS is similar to that reported under U.S. GAAP in that the statement has separate sections for operating, investing, and financing activities. Like U.S. GAAP, IFRS also allow the use of either the indirect or direct method of reporting cash flows from operating activities. IFRS differ from U.S. GAAP in some minor areas, including:

- Interest paid can be reported as either an operating or a financing activity, while interest received can be reported as either an operating or an investing activity. In contrast, U.S. GAAP reports interest paid or received as an operating activity.
- Dividends paid can be reported as either an operating or a financing activity, while dividends received can be reported as either an operating or an investing activity. In contrast, U.S. GAAP reports dividends paid as a financing activity and dividends received as an operating activity.
- Cash flows to pay taxes are reported as a separate line in the operating activities, in contrast to U.S. GAAP, which does not require a separate line disclosure.

* IFRS are further discussed and illustrated on pages 716-716G and in Appendix D.

Mornin' Joe International

Our authors have prepared statements for Mornin' Joe under IFRS guidelines as a basis for comparison with U.S.-prepared statements. This allows students to see how financial reporting differs under IFRS.

IFRS Training Video and IFRS PowerPoint Presentation

A training video with the voice of our distinguished author, Jim Reeve, will walk an instructor through the nuances of this complex topic. A PowerPoint deck, based on the training video, will allow instructors to customize the presentation for delivery to their students.

New to the 2nd Edition

NEW

The Accounting Equation

A new format has been implemented in Chapter 2 for analyzing transactions. This new format includes the following elements: (1) transaction description, (2) analysis, (3) journal entry, and (4) accounting equation impact. This will help students understand that a transaction ultimately affects the accounting equation—*Assets = Liabilities + Owner's Equity.*

Transaction F *Nov. 30 NetSolutions paid creditors on account, $950.*

Analysis This transaction decreases a liability account and decreases an asset account. It is recorded in the journal as a $950 decrease (debit) to Accounts Payable and a $950 decrease (credit) to Cash.

Journal Entry

Nov.	30	Accounts Payable		950	
		Cash			950
		Paid creditors on account.			

Accounting Equation Impact

Assets		=	Liabilities		+	Owner's Equity
Cash			Accounts Payable			
	Nov. 30 950		Nov. 30 950			

Transaction G *Nov. 30 Chris Clark determined that the cost of supplies on hand at November 30 was $550.*

Analysis NetSolutions purchased $1,350 of supplies on November 10. Thus, $800 ($1,350 – $550) of supplies must have been used during November. This transaction is recorded in the journal as an $800 increase (debit) to Supplies Expense and an $800 decrease (credit) to Supplies.

Journal Entry

Nov.	30	Supplies Expense		800	
		Supplies			800
		Supplies used during November.			

Accounting Equation Impact

Assets		=	Liabilities	+	Owner's Equity (Expense)	
Supplies					Supplies Expense	
	Nov. 30 800				Nov. 30 800	

Activity-Based Costing

Pulling from our existing appendix coverage, we have placed in Chapter 25 a thorough discussion of activity-based costing (ABC). ABC is framed in the context of product pricing and profit analysis.

A new uniform method for performing differential analysis is employed for all the differential analysis illustrations and end-of-chapter materials. This approach provides the student a consistent solution grid for solving differential analyses.

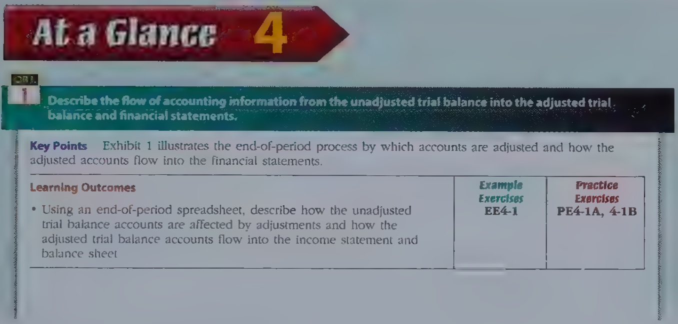
Financial Analysis and Interpretation

FAI

New Financial Analysis and Interpretation learning objectives have been added to the financial chapters and where appropriate, linked to real-world situations. FAI encourages students to go deeper into the material to analyze accounting information and improve critical thinking skills.

Updated At a Glance

Students prepare for homework and tests by referring to our end-of-chapter grid which outlines learning objectives, linking concept coverage to specific examples. Through our updated At a Glance, students can review the chapter's learning objectives and key learning outcomes. In addition, all the *Example Exercises* and *Practice Exercises* have been indexed so that each learning objective and key outcomes can be viewed.



At a Glance 4

OBJ. 1 Describe the flow of accounting information from the unadjusted trial balance into the adjusted trial balance and financial statements.

Key Points Exhibit 1 illustrates the end-of-period process by which accounts are adjusted and how the adjusted accounts flow into the financial statements.

Learning Outcomes	Example Exercises	Practice Exercises
• Using an end-of-period spreadsheet, describe how the unadjusted trial balance accounts are affected by adjustments and how the adjusted trial balance accounts flow into the income statement and balance sheet	EE4-1	PE4-1A, 4-1B

End-of-Chapter Exercises and Problems

All of our end-of-chapter materials have been updated, using new data, company names, and real-world data.

Test Bank

With the assistance of over fifteen distinguished professors, we completely revamped our test bank. We created more multiple-choice, matching, and problem type questions.

At the CengageBrain.com home page, search for the ISBN of this title (from the back cover of the book) using the search box at the top of the page. This will take you to the product page where these resources can be found.

Chapter-by-Chapter Enhancements

The following specific content changes can be found in *Accounting Using Excel for Success, 2e*.

Chapter 1: Introduction to Accounting and Business

- *Google* replaces *Starbucks* in the chapter opening example.
- Proprietorships, partnerships, corporations, and limited liability companies (LLC) are now discussed with the business entity concept.
- Added an International Connection feature to introduce students to IFRS.
- New Financial Analysis and Interpretation (FAI): **Ratio of Liabilities to Owner's Equity** using real-world companies *McDonald's* and *Google*.
- Added new Example Exercise, Practice Exercise, and end-of-chapter exercises to correspond with the new FAI.

Chapter 2: Analyzing Transactions

- A new format has been implemented in Chapter 2 to help students better understand how to analyze and record transactions.
- A table summarizing common transaction terminology has also been added. This table includes common transaction terms and the related accounts that would be debited and credited in a journal entry.
- New Financial Analysis and Interpretation: **Horizontal Analysis** using a fictitious company, *J. Holmes, Attorney at Law, P.C.* and a real-world company, *Apple Inc.*
- Added new Example Exercise, Practice Exercise, and end-of-chapter exercises to correspond with the new FAI.

Chapter 3: The Adjusting Process

- The *Accounting Equation Impact* feature described in Chapter 2 is also used in Chapter 3 to describe and illustrate adjusting entries.
- New chapter opener features *Rhapsody*, an Internet-based music service.
- New Financial Analysis and Interpretation: **Vertical Analysis** continuing with fictitious company, *J. Holmes, Attorney at Law, P.C.* and adding a real-world company, *RealNetworks, Inc.*

Chapter 4: Completing the Accounting Cycle

- The Flow of Accounting Information exhibit at the beginning of the chapter has been revised to show the flow of accounting data from the adjusted trial balance directly into the income statement, statement of owner's equity, and balance sheet.
- New Financial Analysis and Interpretation: **Working Capital and Current Ratio** using *Electronic Arts, Inc.* and *Take-Two Interactive Software, Inc.*
- Added new Example Exercise, Practice Exercise, and end-of-chapter exercises to correspond with the new FAI.

Chapter 5: Accounting Systems

- An illustration of a computerized accounting system was updated using the screen shots from Quickbooks® Pro 2010 edition.
- Streamlined discussion of special journals.
- Removed discussion of "Manual Accounting Systems."
- Added a Business Connection feature.

- New Financial Analysis and Interpretation: **Segment Analysis** using real-world company *Intuit, Inc.*
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.

Chapter 6: Accounting for Merchandising Businesses

- The computation of cost of merchandise sold (under the periodic inventory system) has been moved from the beginning of the chapter to an end-of-chapter appendix.
- A new section has been added that summarizes the effects of merchandise transactions on the merchandise inventory account. This is illustrated using a T account for merchandise inventory.
- Moved coverage of "Accounting Systems for Merchandisers" to our online site (www.cengage.com/accounting/reeve).
- New Financial Analysis and Interpretation: **Ratio of Net Sales to Assets** using real-world company *Dollar Tree, Inc.*
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.

Chapter 7: Inventories

- New Financial Analysis and Interpretation: **Inventory Turnover and Number of Days, Sales in Inventory** using real-world companies *Best Buy* and *Zales*.
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.

Chapter 8: Sarbanes-Oxley, Internal Control, and Cash

- Updated chapter graphic for better clarity and snapshot comprehension.
- New Financial Analysis and Interpretation: **Ratio of Cash to Monthly Cash Expenses** using real-world company *Evergreen Solar, Inc.*
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.

Chapter 9: Receivables

- New Financial Analysis and Interpretation: **Accounts Receivable Turnover and Number of Days' Sales in Receivables** using real-world company *FedEx*.
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.

Chapter 10: Fixed Assets and Intangible Assets

- Updated many chapter graphics for better clarity and snapshot comprehension.
- New Financial Analysis and Interpretation: **Fixed Asset Turnover Ratio** using real-world company *Starbucks Corporation*.
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.

Chapter 11: Current Liabilities and Payroll

- The example of *Starbucks Corporation* on long-term debt has been replaced by *P.F. Chang's*.
- Updated Wage Bracket Withholding table, based on data from the *2010 Publication 15*.
- Removed discussion of social security cap on withholding (above $100,000).

- Updated Business Connection feature to cover *General Motors* and its pension problems.
- New Financial Analysis and Interpretation: **Quick Ratio** using real-world company *TechSolutions, Inc*.
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.

Chapter 12: Accounting for Partnerships and Limited Liability Companies

- *Razor* replaces *AgentBlaze LLC* as the chapter opening example.
- Updated Business Connection feature to Kristen Hall, founding member of the country music group *Sugarland* and her lawsuit.
- New Financial Analysis and Interpretation: **Revenue per Employee** showing *McDonald's* and *Starbucks* to understand evaluation within an industry.
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.
- Eliminated the section on "Errors in Liquidation" to reduce minor redundancy.

Chapter 13: Corporations: Organization, Stock Transactions, and Dividends

- New Financial Analysis and Interpretation: **JPMorgan Chase & Co. Earnings per Share** using *Hasbro*, *Bank of America Corporation*, and *JPMorgan Chase & Co*.
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.

Chapter 14: Long-Term Liabilities: Bonds and Notes

- Updated Business Connection feature on U.S. government debt.
- Updated Business Connection feature to cover *General Motors* bonds.
- Added an Integrity, Objectivity, and Ethics feature to discuss "Liar's Loans."
- New Financial Analysis and Interpretation: **Number of Times Interest Charges Are Earned** using *Under Armour, Inc*.
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.

Chapter 15: Investments and Fair Value Accounting

- Added an Integrity, Objectivity, and Ethics box titled "*Loan Loss Woes*" on mortgage loans called "sub-prime" and "Alt-A" loans.
- Updated Business Connection feature to "Apple's Entrance to Streaming Music."
- Revised "Value and Reporting Investments" to simplify the reading process.
- New Financial Analysis and Interpretation: **Dividend Yield** using *News Corporation*.
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.
- Moved "Accounting for Held-to-Maturity Investments" appendix to **www.cengagebrain.com**. (Using the ISBN on the back of this book, navigate to the companion site.) Instructors can visit http://login.cengage.com to access resources.

Mornin' Joe

- To expand students' understanding of financial statement preparation outside the United States, the authors took our unique company example, *Mornin' Joe,* and show how it goes international. They prepared a set of financial statements following IFRS guidelines. To aid in learning, callout features pinpoint the differences between U.S. GAAP and IFRS.

Chapter 16: Statement of Cash Flows

- Updated Business Connection feature to "Cash Crunch!" featuring *Chrysler Group LLC.*
- New Financial Analysis and Interpretation: **Free Cash Flow** using *Research in Motion, Inc.*, maker of BlackBerry® smartphones.
- Added new Example Exercise and Practice Exercise to correspond with the new FAI.

Chapter 17: Financial Statement Analysis

- Real-world financial statement analysis problem uses data from the *Nike, Inc.* 2010 10-K. A portion of Nike's 10-K is located in Appendix C.
- Updated Integrity, Objectivity, and Ethics feature discusses "Chief Financial Officer Bonuses."
- Updated Integrity, Objectivity, and Ethics feature to "Buy Low, Sell High."

Chapter 18: Managerial Accounting Concepts and Principles

- The chapter opener has been modified to feature Paul Stanley of *KISS*. He has a custom guitar built by *Washburn Guitars.*
- Updated Business Connection feature to "Build-to-Order" about *Dell Inc.*

Chapter 19: Job Order Costing

- Updated Business Connection feature to discuss "BMW's Factory Labor Experiment."

Chapter 20: Process Cost Systems

- Updated Business Connection feature entitled "Fridge Pack" to discuss *Alcoa Inc.*

Chapter 21: Cost Behavior and Cost-Volume-Profit Analysis

- Updated Business Connection feature entitled "Breaking Even in the Airline Industry" to discuss the airline industry.
- Added a new Business Connection feature to highlight franchising using real-world companies such as *McDonald's*, *Wendy's*, *Dunkin' Donuts*, and *Fatburger.*

Chapter 22: Budgeting

- Updated Business Connection feature called the "U.S. Federal Budget Deficit."
- Simplified the writing of definitions and other content explanations.

Chapter 23: Performance Evaluation Using Variances from Standard Costs

- Added a new Business Connection feature to highlight *Brinker International*, the operator of popular chains such as *Chili's* and *On the Border.*

Chapter-by-Chapter Enhancements

Chapter 24: Performance Evaluation for Decentralized Operations

- Chapter opener replaces *K2 Sports* with *E.W. Scripps Company*, a conglomerate of media companies.
- Added a new Business Connection feature entitled "Centralized vs. Decentralized Research and Development."

Chapter 25: Differential Analysis, Product Pricing, and Activity-Based Costing

- Chapter opener replaces *RealNetworks, Inc.* with *Facebook*.
- The discussion on activity-based costing (ABC) has been moved from the appendix and updated. ABC is framed in the context of product pricing and profit analysis.
- The total cost and variable cost concepts are moved to an appendix. This change simplifies this section to make room for the added ABC material.

Chapter 26: Capital Investment Analysis

- Updated chapter opener with a cleaner writing style.
- Added a new Business Connection feature called "*Avatar:* The Most Expensive Movie Ever Made (and the Most Successful)."

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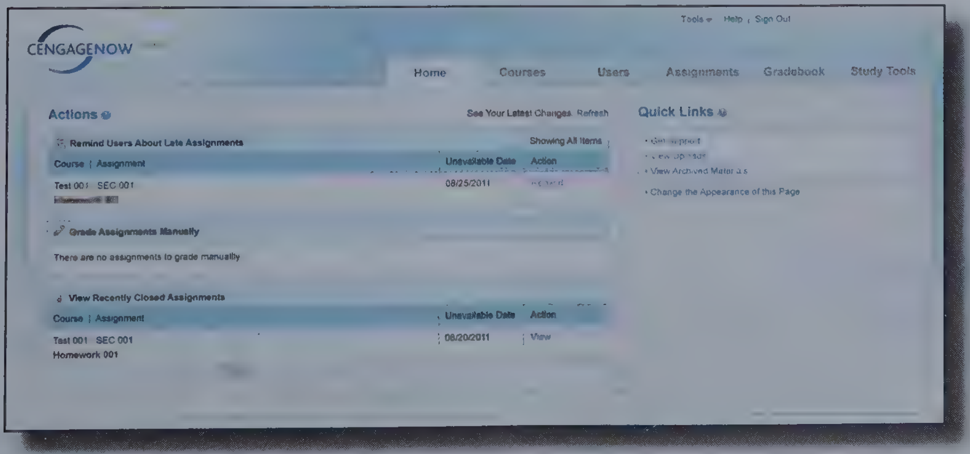

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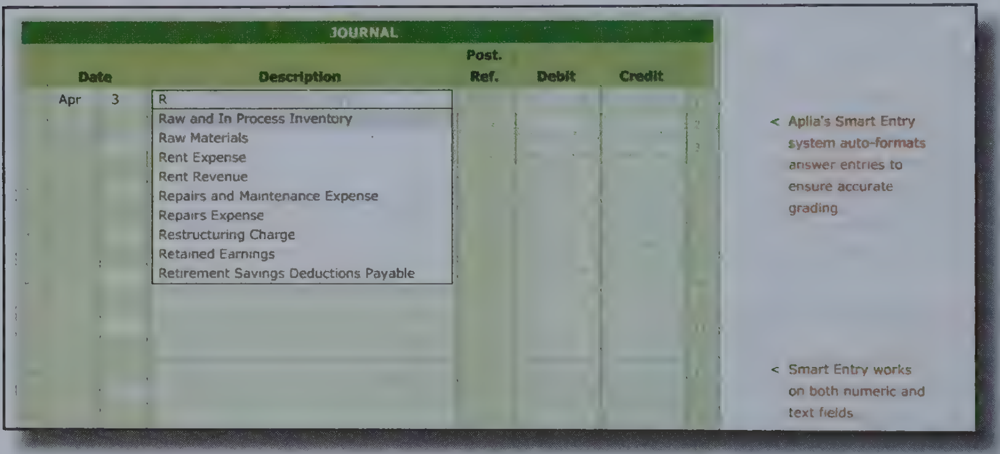

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Brief Contents

Contents

Practice Set: Glorious Garden Lawn Service
This set is a service business operated as a proprietorship. It includes a narrative of transactions and instructions for an optional solution with no debits and credits. This set can be solved manually or with the General Ledger software.

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Chapter 11 Current Liabilities and Payroll 487

Practice Set: Pumping Iron
This set is a merchandising business operated as a proprietorship. It includes business documents, and it can be solved manually or with the General Ledger software.

Practice Set: Lucy's Doggie Care
This set includes payroll transactions for a merchandising business operated as a proprietorship. It includes business documents, and it can be solved manually or with the General Ledger software.

Practice Set: Art by Design
This set is a service and merchandising business operated as a corporation. It includes a narrative for six months of transactions, which are to be recorded in a general journal. The set can be solved manually or with the General Ledger software.

Practice Set: Digital Revolution Services
This set is a departmentalized merchandising business operated as a corporation. It includes a narrative of transactions, which are to be recorded in special journals. The set can be solved manually or with the General Ledger software.

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Practice Set: Luxurious Spa
This set is a manufacturing business operated as a corporation that uses a job order cost system.
The set can be solved manually or with the General Ledger software.

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CHAPTER

1

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Introduction to Accounting and Business

Google™

When two teams pair up for a game of football, there is often a lot of noise. The band plays, the fans cheer, and fireworks light up the scoreboard. Obviously, the fans are committed and care about the outcome of the game. Just like fans at a football game, the owners of a business want their business to "win" against their competitors in the marketplace. While having your football team win can be a source of pride, winning in the marketplace goes beyond pride and has many tangible benefits. Companies that are winners are better able to serve customers, provide good jobs for employees, and make money for their owners.

One such successful company is **Google**, one of the most visible companies on the Internet. Many of us cannot visit the Web without using Google to power a search. As one writer said, "Google is the closest thing the Web has to an ultimate answer machine." And yet, Google is a free tool—no one asks for your credit card when you use Google's search tools.

Do you think Google has been a successful company? Does it make money? How would you know? Accounting helps to answer these questions. Google's accounting information tells us that Google is a successful company that makes a lot of money, but not from you and me. Google makes its money from advertisers.

This textbook introduces you to accounting, the language of business. Chapter 1 begins by discussing what a business is, how it operates, and the role that accounting plays.

Learning Objectives

After studying this chapter, you should be able to:

Obj.		Example Exercises	Page
1	Describe the nature of a business, the role of accounting, and ethics in business.		
	Nature of Business and Accounting		
	Types of Businesses		
	The Role of Accounting in Business		
	Role of Ethics in Accounting and Business		
	Opportunities for Accountants		
2	Summarize the development of accounting principles and relate them to practice.		
	Generally Accepted Accounting Principles		
	Business Entity Concept		
	The Cost Concept	EE 1-1	8
3	State the accounting equation and define each element of the equation.		
	The Accounting Equation	EE 1-2	9
4	Describe and illustrate how business transactions can be recorded in terms of the resulting change in the elements of the accounting equation.		
	Business Transactions and the Accounting Equation	EE 1-3	14
5	Describe the financial statements of a proprietorship and explain how they interrelate.		
	Financial Statements		
	Income Statement	EE 1-4	15
	Statement of Owner's Equity	EE 1-5	16
	Balance Sheet	EE 1-6	18
	Statement of Cash Flows	EE 1-7	19
	Interrelationships Among Financial Statements		
6	Describe and illustrate the use of the ratio of liabilities to owner's equity in evaluating a company's financial condition.		
	Financial Analysis and Interpretation: Ratio of Liabilities to Owner's Equity	EE 1-8	22

At a Glance 1 Page 22

Obj. 1 Describe the nature of a business, the role of accounting, and ethics in business.

Nature of Business and Accounting

A **business**[1] is an organization in which basic resources (inputs), such as materials and labor, are assembled and processed to provide goods or services (outputs) to customers. Businesses come in all sizes, from a local coffee house to Starbucks, which sells over $10 billion of coffee and related products each year.

The objective of most businesses is to earn a **profit**. Profit is the difference between the amounts received from customers for goods or services and the amounts paid for the inputs used to provide the goods or services. This text focuses on businesses operating to earn a profit. However, many of the same concepts and principles also apply to not-for-profit organizations such as hospitals, churches, and government agencies.

Types of Businesses

Three types of businesses operated for profit include service, merchandising, and manufacturing businesses.

Each type of business and some examples are described below.

Service businesses provide services rather than products to customers.

Delta Air Lines (transportation services)
The Walt Disney Company (entertainment services)

Merchandising businesses sell products they purchase from other businesses to customers.

Wal-Mart (general merchandise)
Amazon.com (Internet books, music, videos)

Manufacturing businesses change basic inputs into products that are sold to customers.

Ford Motor Co. (cars, trucks, vans)
Dell Inc. (personal computers)

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[1] A complete glossary of terms appears at the end of the text.

The Role of Accounting in Business

The role of accounting in business is to provide information for managers to use in operating the business. In addition, accounting provides information to other users in assessing the economic performance and condition of the business.

Thus, **accounting** can be defined as an information system that provides reports to users about the economic activities and condition of a business. You may think of accounting as the "language of business." This is because accounting is the means by which businesses' financial information is communicated to users.

Note:
Accounting is an information system that provides reports to users about the economic activities and condition of a business.

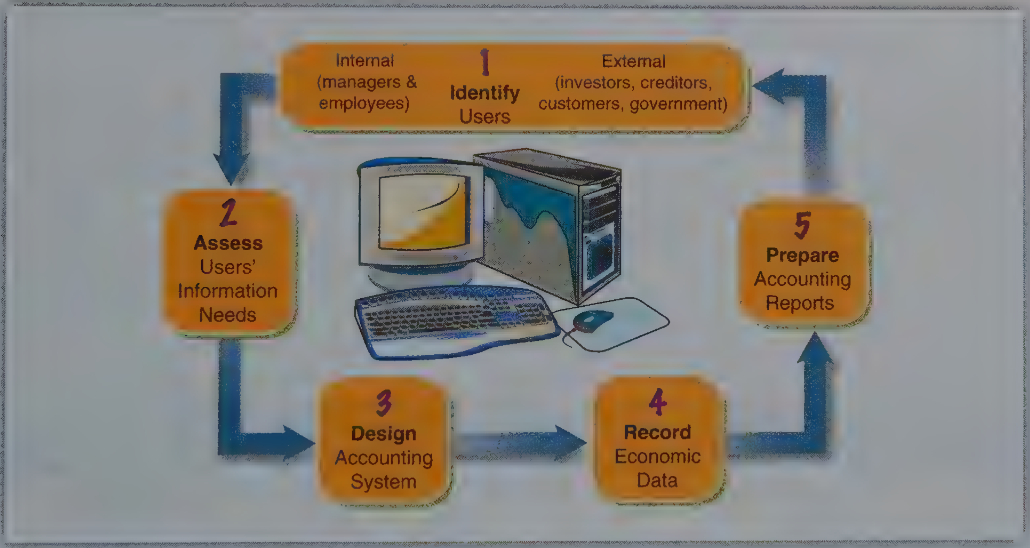
The process by which accounting provides information to users is as follows:

1. Identify users.
2. Assess users' information needs.
3. Design the accounting information system to meet users' needs.
4. Record economic data about business activities and events.
5. Prepare accounting reports for users.

As illustrated in Exhibit 1, users of accounting information can be divided into two groups: internal users and external users.

EXHIBIT 1

Accounting as an Information System



Internal users of accounting information include managers and employees. These users are directly involved in managing and operating the business. The area of accounting that provides internal users with information is called **managerial accounting** or **management accounting**.

The objective of managerial accounting is to provide relevant and timely information for managers' and employees' decision-making needs. Often times, such information is sensitive and is not distributed outside the business. Examples of sensitive information might include information about customers, prices, and plans to expand the business. Managerial accountants employed by a business are employed in **private accounting**.

External users of accounting information include investors, creditors, customers, and the government. These users are not directly involved in managing and operating the business. The area of accounting that provides external users with information is called **financial accounting**.

The objective of financial accounting is to provide relevant and timely information for the decision-making needs of users outside of the business. For example, financial reports on the operations and condition of the business are useful for banks and

other creditors in deciding whether to lend money to the business. **General-purpose financial statements** are one type of financial accounting report that is distributed to external users. The term *general-purpose* refers to the wide range of decision-making needs that these reports are designed to serve. Later in this chapter, general-purpose financial statements are described and illustrated.

Role of Ethics in Accounting and Business

The objective of accounting is to provide relevant, timely information for user decision making. Accountants must behave in an ethical manner so that the information they provide users will be trustworthy and, thus, useful for decision making. Managers and employees must also behave in an ethical manner in managing and operating a business. Otherwise, no one will be willing to invest in or loan money to the business.

Ethics are moral principles that guide the conduct of individuals. Unfortunately, business managers and accountants sometimes behave in an unethical manner. A number of managers of the companies listed in Exhibit 2 engaged in accounting or

EXHIBIT 2 **Accounting and Business Frauds**

Company	Nature of Accounting or Business Fraud	Result
American International Group, Inc. (AIG)	Used sham accounting transactions to inflate performance.	CEO resigned. Executives criminally convicted. AIG paid $126 million in fines.
Computer Associates International, Inc.	Fraudulently inflated its financial results.	CEO and senior executives indicted. Five executives pled guilty. $225 million fine.
Enron	Fraudulently inflated its financial results.	Bankruptcy. Senior executives criminally convicted. Over $60 billion in stock market losses.
Fannie Mae	Improperly shifted financial performance between periods.	CEO and CFO fired. Company made a $9 billion correction to previously reported earnings.
HealthSouth	Overstated performance by $4 billion in false entries.	Senior executives criminally convicted.
Qwest Communications International, Inc.	Improperly recognized $3 billion in false receipts.	CEO and six other executives criminally convicted of "massive financial fraud." $250 million SEC fine.
Satyam Computer Services	Significantly inflated assets and earnings.	Chairman and founder is in jail; investors lost billions.
Terex	Recorded profit prematurely and inflated profits.	Company paid $8 million to Securities and Exchange Commission in settlement.
Tyco International, Ltd.	Failed to disclose secret loans to executives that were subsequently forgiven.	CEO forced to resign and subjected to frozen asset order and criminally convicted.
United Rental	Inflated profits to meet earnings forecasts and analysts expectations.	Vice chairman and chief financial officer indicted for conspiracy, securities fraud, and insider trading.
Xerox Corporation	Recognized $3 billion in revenue prior to when it should have been.	$10 million fine to SEC. Six executives forced to pay $22 million.

business fraud. These ethical violations led to fines, firings, and lawsuits. In some cases, managers were criminally prosecuted, convicted, and sent to prison.

What went wrong for the managers and companies listed in Exhibit 2? The answer normally involved one or both of the following two factors:

Failure of Individual Character. An ethical manager and accountant is honest and fair. However, managers and accountants often face pressures from supervisors to meet company and investor expectations. In many of the cases in Exhibit 2, managers and accountants justified small ethical violations to avoid such pressures. However, these small violations became big violations as the company's financial problems became worse.

Culture of Greed and Ethical Indifference. By their behavior and attitude, senior managers set the company culture. In most of the companies listed in Exhibit 2, the senior managers created a culture of greed and indifference to the truth.

As a result of the accounting and business frauds shown in Exhibit 2, Congress passed new laws to monitor the behavior of accounting and business. For example, the Sarbanes-Oxley Act of 2002 (SOX) was enacted. SOX established a new oversight body for the accounting profession called the Public Company Accounting Oversight Board (PCAOB). In addition, SOX established standards for independence, corporate responsibility, and disclosure.

How does one behave ethically when faced with financial or other types of pressure? Guidelines for behaving ethically are shown in Exhibit 3.[2]

1. Identify an ethical decision by using your personal ethical standards of honesty and fairness.
2. Identify the consequences of the decision and its effect on others.
3. Consider your obligations and responsibilities to those that will be affected by your decision.
4. Make a decision that is ethical and fair to those affected by it.

EXHIBIT 3

Guidelines for Ethical Conduct

Integrity, Objectivity, and Ethics in Business

BERNIE MADOFF

In June 2009, Bernard L. "Bernie" Madoff was sentenced to 150 years in prison for defrauding thousands of investors in one of the biggest frauds in American history. Madoff's fraud started several decades earlier when he began a "Ponzi scheme" in his investment management firm, Bernard L. Madoff Securities LLC.

In a Ponzi scheme, the investment manager uses funds received from new investors to pay a return to existing investors, rather than basing investment returns on the fund's actual performance. As long as the investment manager is able to attract new investors, he or she will have new funds to pay existing investors and continue the fraud. While most Ponzi schemes collapse quickly when the investment manager runs out of new investors, Madoff's reputation, popularity, and personal contacts provided a steady stream of investors which allowed the fraud to survive for decades.

Opportunities for Accountants

Numerous career opportunities are available for students majoring in accounting. Currently, the demand for accountants exceeds the number of new graduates entering the job market. This is partly due to the increased regulation of business caused by the accounting and business frauds shown in Exhibit 2. Also, more and

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[2] Many companies have ethical standards of conduct for managers and employees. In addition, the Institute of Management Accountants and the American Institute of Certified Public Accountants have professional codes of conduct.

more businesses have come to recognize the importance and value of accounting information.

As indicated earlier, accountants employed by a business are employed in private accounting. Private accountants have a variety of possible career options within a company. Some of these career options are shown in Exhibit 4 along with their starting salaries. Accountants who provide audit services, called auditors, verify the accuracy of financial records, accounts, and systems. As shown in Exhibit 4, several private accounting careers have certification options.

Accountants and their staff who provide services on a fee basis are said to be employed in **public accounting**. In public accounting, an accountant may practice as an individual or as a member of a public accounting firm. Public accountants who have met a state's education, experience, and examination requirements may become **Certified Public Accountants (CPAs)**. CPAs generally perform general accounting, audit, or tax services. As can be seen in Exhibit 4, CPAs have slightly better starting salaries than private accountants. Career statistics indicate, however, that these salary differences tend to disappear over time.

EXHIBIT 4 **Accounting Career Paths and Salaries**

Accounting Career Track	Description	Career Options	Annual Starting Salaries[1]	Certification
Private Accounting	Accountants employed by companies, government, and not-for-profit entities.	Bookkeeper	$36,125	
		Payroll clerk	$34,875	Certified Payroll Professional (CPP)
		General accountant	$42,000	
		Budget analyst	$44,375	
		Cost accountant	$43,750	Certified Management Accountant (CMA)
		Internal auditor	$48,250	Certified Internal Auditor (CIA)
		Information technology auditor	$56,500	Certified Information Systems Auditor (CISA)
Public Accounting	Accountants employed individually or within a public accounting firm in tax or audit services.	Local firms	$45,063	Certified Public Accountant (CPA)
		National firms	$54,250	Certified Public Accountant (CPA)

Source: Robert Half 2010 Salary Guide (Finance and Accounting), Robert Half International, Inc.

[1] Mean salaries of a reported range. Private accounting salaries are reported for large companies. Salaries may vary by region.

Because all functions within a business use accounting information, experience in private or public accounting provides a solid foundation for a career. Many positions in industry and in government agencies are held by individuals with accounting backgrounds.

OBJ. 2 Summarize the development of accounting principles and relate them to practice.

Generally Accepted Accounting Principles

If a company's management could record and report financial data as it saw fit, comparisons among companies would be difficult, if not impossible. Thus, financial accountants follow **generally accepted accounting principles (GAAP)** in preparing reports. These reports allow investors and other users to compare one company to another.

Accounting principles and concepts develop from research, accepted accounting practices, and pronouncements of regulators. Within the United States, the **Financial Accounting Standards Board (FASB)** has the primary responsibility for developing accounting principles. The FASB publishes *Statements of Financial Accounting Standards* as well as *Interpretations* of these Standards. In addition, the **Securities and Exchange Commission (SEC),** an agency of the U.S. government, has authority over the accounting and financial disclosures for companies whose shares of ownership (stock) are traded and sold to the public. The SEC normally accepts the accounting principles set forth by the FASB. However, the SEC may issue *Staff Accounting Bulletins* on accounting matters that may not have been addressed by the FASB.

Many countries outside the United States use generally accepted accounting principles adopted by the **International Accounting Standards Board (IASB)**. The IASB issues *International Financial Reporting Standards (IFRSs)*. Significant differences currently exist between FASB and IASB accounting principles. However, the FASB and IASB are working together to reduce and eliminate these differences into a single set of accounting principles. Such a set of worldwide accounting principles would help facilitate investment and business in an increasingly global economy.

IFRS IFRS
See Appendix D for
more information

In this chapter and text, accounting principles and concepts are emphasized. It is by this emphasis on the "why" as well as the "how" that you will gain an understanding of accounting.

IFRS

International Connection

INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS)

IFRS are considered to be more "principles-based" than U.S. GAAP, which is considered to be more "rules-based." For example, U.S. GAAP consists of approximately 17,000 pages, which includes numerous industry-specific accounting rules. In contrast, IFRS allow more judgment in deciding how business transactions are recorded. Many believe that the strong regulatory and litigation environment in the United States is the cause for the more rules-based GAAP approach. Regardless, IFRS and GAAP share more in common than differences.*

*Differences between U.S. GAAP and IFRS are further discussed and illustrated in Appendix D.

Business Entity Concept

The **business entity concept** limits the economic data in an accounting system to data related directly to the activities of the business. In other words, the business is viewed as an entity separate from its owners, creditors, or other businesses. For example, the accountant for a business with one owner would record the activities of the business only and would not record the personal activities, property, or debts of the owner.

Note:
Under the business entity concept, the activities of a business are recorded separately from the activities of its owners, creditors, or other businesses.

A business entity may take the form of a proprietorship, partnership, corporation, or limited liability company (LLC). Each of these forms and their major characteristics are listed below.

Form of Business Entity	Characteristics
Proprietorship is owned by one individual.	• 70% of business entities in the United States. • Easy and cheap to organize. • Resources are limited to those of the owner. • Used by small businesses.
Partnership is owned by two or more individuals.	• 10% of business organizations in the United States (combined with limited liability companies). • Combines the skills and resources of more than one person.

(continued)

Form of Business Entity	Characteristics
Corporation is organized under state or federal statutes as a separate legal taxable entity.	• Generates 90% of business revenues. • 20% of the business organizations in the United States. • Ownership is divided into shares called stock. • Can obtain large amounts of resources by issuing stock. • Used by large businesses.
Limited liability company (LLC) combines the attributes of a partnership and a corporation.	• 10% of business organizations in the United States (combined with partnerships). • Often used as an alternative to a partnership. • Has tax and legal liability advantages for owners.

The three types of businesses discussed earlier—service, merchandising, and manufacturing—may be organized as proprietorships, partnerships, corporations, or limited liability companies. Because of the large amount of resources required to operate a manufacturing business, most manufacturing businesses such as Ford Motor Company are corporations. Most large retailers such as Wal-Mart and Home Depot are also corporations.

The Cost Concept

Under the **cost concept**, amounts are initially recorded in the accounting records at their cost or purchase price. To illustrate, assume that Aaron Publishers purchased the following building on February 20, 2010, for $150,000:

Price listed by seller on January 1, 2010	$160,000
Aaron Publishers' initial offer to buy on January 31, 2010	140,000
Purchase price on February 20, 2010	150,000
Estimated selling price on December 31, 2012	220,000
Assessed value for property taxes, December 31, 2012	190,000

Under the cost concept, Aaron Publishers records the purchase of the building on February 20, 2010, at the purchase price of $150,000. The other amounts listed above have no effect on the accounting records.

The fact that the building has an estimated selling price of $220,000 on December 31, 2012, indicates that the building has increased in value. However, to use the $220,000 in the accounting records would be to record an illusory or unrealized profit. If Aaron Publishers sells the building on January 9, 2014, for $240,000, a profit of $90,000 ($240,000 – $150,000) is then realized and recorded. The new owner would record $240,000 as its cost of the building.

The cost concept also involves the objectivity and unit of measure concepts. The **objectivity concept** requires that the amounts recorded in the accounting records be based on objective evidence. In exchanges between a buyer and a seller, both try to get the best price. Only the final agreed-upon amount is objective enough to be recorded in the accounting records. If amounts in the accounting records were constantly being revised upward or downward based on offers, appraisals, and opinions, accounting reports could become unstable and unreliable.

The **unit of measure concept** requires that economic data be recorded in dollars. Money is a common unit of measurement for reporting financial data and reports.

Example Exercise 1-1 Cost Concept

OBJ 2

On August 25, Gallatin Repair Service extended an offer of $125,000 for land that had been priced for sale at $150,000. On September 3, Gallatin Repair Service accepted the seller's counteroffer of $137,000. On October 20, the land was assessed at a value of $98,000 for property tax purposes. On December 4, Gallatin Repair Service was offered $160,000 for the land by a national retail chain. At what value should the land be recorded in Gallatin Repair Service's records?

Follow My Example 1-1

$137,000. Under the cost concept, the land should be recorded at the cost to Gallatin Repair Service.

Practice Exercises: **PE 1-1A, PE 1-1B**

The Accounting Equation

OBJ. 3 State the accounting equation and define each element of the equation.

The resources owned by a business are its **assets**. Examples of assets include cash, land, buildings, and equipment. The rights or claims to the assets are divided into two types: (1) the rights of creditors and (2) the rights of owners. The rights of creditors are the debts of the business and are called **liabilities**. The rights of the owners are called **owner's equity**. The following equation shows the relationship among assets, liabilities, and owner's equity:

Assets = Liabilities + Owner's Equity

This equation is called the **accounting equation**. Liabilities usually are shown before owner's equity in the accounting equation because creditors have first rights to the assets.

Given any two amounts, the accounting equation may be solved for the third unknown amount. To illustrate, if the assets owned by a business amount to $100,000 and the liabilities amount to $30,000, the owner's equity is equal to $70,000, as shown below.

Assets – Liabilities	=	**Owner's Equity**
$100,000 – $30,000	=	$70,000

Example Exercise 1-2 Accounting Equation

OBJ. 3

John Joos is the owner and operator of You're A Star, a motivational consulting business. At the end of its accounting period, December 31, 2011, You're A Star has assets of $800,000 and liabilities of $350,000. Using the accounting equation, determine the following amounts:

a. Owner's equity, as of December 31, 2011.
b. Owner's equity, as of December 31, 2012, assuming that assets increased by $130,000 and liabilities decreased by $25,000 during 2012.

Follow My Example 1-2

a. Assets = Liabilities + Owner's Equity
$800,000 = $350,000 + Owner's Equity
Owner's Equity = $450,000

b. First, determine the change in Owner's Equity during 2012 as follows:
Assets = Liabilities + Owner's Equity
$130,000 = –$25,000 + Owner's Equity
Owner's Equity = $155,000

Next, add the change in Owner's Equity on December 31, 2011, to arrive at Owner's Equity on December 31, 2012, as shown below.
Owner's Equity on December 31, 2012 = $605,000 = $450,000 + $155,000

Practice Exercises: **PE 1-2A, PE 1-2B**

Business Transactions and the Accounting Equation

OBJ. 4 Describe and illustrate how business transactions can be recorded in terms of the resulting change in the elements of the accounting equation.

Paying a monthly telephone bill of $168 affects a business's financial condition because it now has less cash on hand. Such an economic event or condition that directly changes an entity's financial condition or its results of operations is a **business transaction**. For example, purchasing land for $50,000 is a business transaction. In contrast, a change in a business's credit rating does not directly affect cash or any other asset, liability, or owner's equity amount.

BusinessConnection

THE ACCOUNTING EQUATION

The accounting equation serves as the basic foundation for the accounting systems of all companies. From the smallest business, such as the local convenience store, to the largest business, such as Ford Motor Company, companies use the accounting equation. Some examples taken from recent financial reports of well-known companies are shown below.

Company	Assets*	=	Liabilities	+	Owner's Equity
The Coca-Cola Company	$ 40,519	=	$20,047	+	$20,472
Dell, Inc.	26,500	=	22,229	+	4,271
eBay, Inc.	15,593	=	4,509	+	11,084
Google	31,768	=	3,529	+	28,239
McDonald's	28,462	=	15,079	+	13,383
Microsoft Corporation	77,888	=	38,330	+	39,558
Southwest Airlines Co.	14,308	=	9,355	+	4,953
Wal-Mart	163,429	=	98,144	+	65,285

*Amounts are shown in millions of dollars.

Note:
All business transactions can be stated in terms of changes in the elements of the accounting equation.

All business transactions can be stated in terms of changes in the elements of the accounting equation. How business transactions affect the accounting equation can be illustrated by using some typical transactions. As a basis for illustration, a business organized by Chris Clark is used.

Assume that on November 1, 2011, Chris Clark begins a business that will be known as NetSolutions. The first phase of Chris's business plan is to operate NetSolutions as a service business assisting individuals and small businesses in developing Web pages and installing computer software. Chris expects this initial phase of the business to last one to two years. During this period, Chris plans on gathering information on the software and hardware needs of customers. During the second phase of the business plan, Chris plans to expand NetSolutions into a personalized retailer of software and hardware for individuals and small businesses.

Each transaction during NetSolutions' first month of operations is described in the following paragraphs. The effect of each transaction on the accounting equation is then shown.

Transaction A Nov. 1, 2011 *Chris Clark deposited $25,000 in a bank account in the name of NetSolutions.*

This transaction increases the asset cash (on the left side of the equation) by $25,000. To balance the equation, the owner's equity (on the right side of the equation) increases by the same amount. The equity of the owner is identified using the owner's name and "Capital," such as "Chris Clark, Capital."

The effect of this transaction on NetSolutions' accounting equation is shown below.

Assets	=	Owner's Equity
Cash	=	Chris Clark, Capital
a. 25,000		25,000

Since Chris Clark is the sole owner, NetSolutions is a proprietorship. Also, the accounting equation shown above is only for the business, NetSolutions. Under the

business entity concept, Chris Clark's personal assets, such as a home or personal bank account, and personal liabilities are excluded from the equation.

Transaction B

Nov. 5, 2011 *NetSolutions paid $20,000 for the purchase of land as a future building site.*

The land is located in a business park with access to transportation facilities. Chris Clark plans to rent office space and equipment during the first phase of the business plan. During the second phase, Chris plans to build an office and a warehouse on the land.

The purchase of the land changes the makeup of the assets, but it does not change the total assets. The items in the equation prior to this transaction and the effect of the transaction are shown below. The new amounts are called *balances*.

	Assets			Owner's Equity
	Cash	+ Land	=	Chris Clark, Capital
Bal.	25,000			25,000
b.	−20,000	+20,000		
Bal.	5,000	20,000		25,000

Transaction C

Nov. 10, 2011 *NetSolutions purchased supplies for $1,350 and agreed to pay the supplier in the near future.*

You have probably used a credit card to buy clothing or other merchandise. In this type of transaction, you received clothing for a promise to pay your credit card bill in the future. That is, you received an asset and incurred a liability to pay a future bill. Net-Solutions entered into a similar transaction by purchasing supplies for $1,350 and agreeing to pay the supplier in the near future. This type of transaction is called a purchase *on account* and is often described as follows: *Purchased supplies on account, $1,350.*

The liability created by a purchase on account is called an **account payable**. Items such as supplies that will be used in the business in the future are called **prepaid expenses**, which are assets. Thus, the effect of this transaction is to increase assets (Supplies) and liabilities (Accounts Payable) by $1,350, as follows:

	Assets				Liabilities + Owner's Equity	
	Cash	+ Supplies	+ Land	=	Accounts Payable	+ Chris Clark, Capital
Bal.	5,000		20,000			25,000
c.		+1,350			+1,350	
Bal.	5,000	1,350	20,000		1,350	25,000

Transaction D

Nov. 18, 2011 *NetSolutions received cash of $7,500 for providing services to customers.*

You may have earned money by painting houses or mowing lawns. If so, you received money for rendering services to a customer. Likewise, a business earns money by selling goods or services to its customers. This amount is called **revenue**.

During its first month of operations, NetSolutions received cash of $7,500 for providing services to customers. The receipt of cash increases NetSolutions' assets and also increases Chris Clark's equity in the business. The revenues of $7,500 are recorded in a Fees Earned column to the right of Chris Clark, Capital. The effect of this transaction is to increase Cash and Fees Earned by $7,500, as shown at the top of the next page.

	Assets			=	Liabilities +	Owner's Equity	
	Cash	+ Supplies +	Land	=	Accounts Payable	+ Chris Clark, Capital	+ Fees Earned
Bal.	5,000	1,350	20,000		1,350	25,000	
d.	+7,500						+7,500
Bal.	12,500	1,350	20,000		1,350	25,000	7,500

Different terms are used for the various types of revenues. As illustrated above, revenue from providing services is recorded as **fees earned**. Revenue from the sale of merchandise is recorded as **sales**. Other examples of revenue include rent, which is recorded as **rent revenue**, and interest, which is recorded as **interest revenue**.

Instead of receiving cash at the time services are provided or goods are sold, a business may accept payment at a later date. Such revenues are described as *fees earned on account* or *sales on account*. For example, if NetSolutions had provided services on account instead of for cash, transaction (d) would have been described as follows: *Fees earned on account, $7,500.*

In such cases, the firm has an **account receivable**, which is a claim against the customer. An account receivable is an asset, and the revenue is earned and recorded as if cash had been received. When customers pay their accounts, Cash increases and Accounts Receivable decreases.

Transaction E *Nov. 30, 2011 NetSolutions paid the following expenses during the month: wages, $2,125; rent, $800; utilities, $450; and miscellaneous, $275.*

During the month, NetSolutions spent cash or used up other assets in earning revenue. Assets used in this process of earning revenue are called **expenses**. Expenses include supplies used and payments for employee wages, utilities, and other services.

NetSolutions paid the following expenses during the month: wages, $2,125; rent, $800; utilities, $450; and miscellaneous, $275. Miscellaneous expenses include small amounts paid for such items as postage, coffee, and newspapers. The effect of expenses is the opposite of revenues in that expenses reduce assets and owner's equity. Like fees earned, the expenses are recorded in columns to the right of Chris Clark, Capital. However, since expenses reduce owner's equity, the expenses are entered as negative amounts. The effect of this transaction is shown below.

	Assets			=	Liabilities +	Owner's Equity					
	Cash	+ Supplies +	Land	=	Accounts Payable	+ Chris Clark, Capital	+ Fees Earned	– Wages Exp.	– Rent Exp.	– Utilities Exp.	– Misc. Exp.
Bal.	12,500	1,350	20,000		1,350	25,000	7,500				
e.	–3,650							–2,125	–800	–450	–275
Bal.	8,850	1,350	20,000		1,350	25,000	7,500	–2,125	–800	–450	–275

Businesses usually record each revenue and expense transaction as it occurs. However, to simplify, NetSolutions' revenues and expenses are summarized for the month in transactions (d) and (e).

Transaction F *Nov. 30, 2011 NetSolutions paid creditors on account, $950.*

When you pay your monthly credit card bill, you decrease the cash in your checking account and decrease the amount you owe to the credit card company. Likewise, when NetSolutions pays $950 to creditors during the month, it reduces assets and liabilities, as shown at the top of the next page.

	Assets				**Liabilities +**	**Owner's Equity**					
	Cash +	Supplies +	Land	=	Accounts Payable +	Chris Clark, Capital	+ Fees Earned –	Wages Exp. –	Rent Exp. –	Utilities Exp. –	Misc. Exp.
Bal.	8,850	1,350	20,000		1,350	25,000	7,500	–2,125	–800	–450	–275
f.	–950				–950						
Bal.	7,900	1,350	20,000		400	25,000	7,500	–2,125	–800	–450	–275

Paying an amount on account is different from paying an expense. The paying of an expense reduces owner's equity, as illustrated in transaction (e). Paying an amount on account reduces the amount owed on a liability.

Nov. 30, 2011 *Chris Clark determined that the cost of supplies on hand at the end of the month was $550.*

Transaction G

The cost of the supplies on hand (not yet used) at the end of the month is $550. Thus, $800 ($1,350 – $550) of supplies must have been used during the month. This decrease in supplies is recorded as an expense, as shown below.

	Assets				**Liabilities +**	**Owner's Equity**						
	Cash +	Supplies +	Land	=	Accounts Payable +	Chris Clark, Capital	+ Fees Earned –	Wages Exp. –	Rent Exp. –	Supplies Exp. –	Utilities Exp. –	Misc. Exp.
Bal.	7,900	1,350	20,000		400	25,000	7,500	–2,125	–800		–450	–275
g.		–800								–800		
Bal.	7,900	550	20,000		400	25,000	7,500	–2,125	–800	–800	–450	–275

Nov. 30, 2011 *Chris Clark withdrew $2,000 from NetSolutions for personal use.*

Transaction H

At the end of the month, Chris Clark withdrew $2,000 in cash from the business for personal use. This transaction is the opposite of an investment in the business by the owner. Withdrawals by the owner should not be confused with expenses. Withdrawals *do not* represent assets or services used in the process of earning revenues. Instead, withdrawals are a distribution of capital to the owner. Owner withdrawals are identified by the owner's name and *Drawing*. For example, Chris Clark's withdrawal is identified as Chris Clark, Drawing. Like expenses, withdrawals are recorded in a column to the right of Chris Clark, Capital. The effect of the $2,000 withdrawal is as follows:

	Assets				**Liabilities +**	**Owner's Equity**							
	Cash +	Supp. +	Land	=	Accounts Payable +	Chris Clark, Capital –	Chris Clark, Drawing +	Fees Earned –	Wages Exp. –	Rent Exp. –	Supplies Exp. –	Utilities Exp. –	Misc. Exp.
Bal.	7,900	550	20,000		400	25,000		7,500	–2,125	–800	–800	–450	–275
h.	–2,000						–2,000						
Bal.	5,900	550	20,000		400	25,000	–2,000	7,500	–2,125	–800	–800	–450	–275

Summary The transactions of NetSolutions are summarized at the top of the next page. Each transaction is identified by letter, and the balance of each accounting equation element is shown after every transaction.

You should note the following:

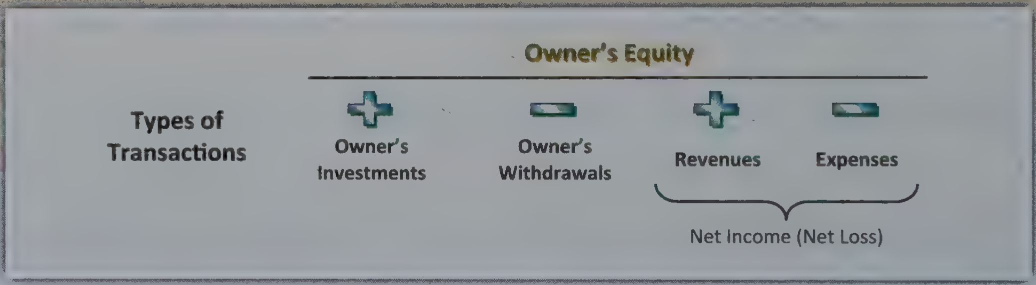
1. The effect of every transaction *is an increase or a decrease in one or more of the accounting equation elements.*
2. The two sides of the accounting equation are *always equal.*
3. The owner's equity is *increased by amounts invested by the owner and is decreased by withdrawals by the owner.* In addition, the owner's equity is *increased by revenues* and is *decreased by expenses.*

	Assets			= Liabilities +	Owner's Equity							
	Cash	+ Supp. +	Land	= Accounts Payable +	Chris Clark, Capital	– Chris Clark, Drawing	+ Fees Earned –	Wages Exp. –	Rent Exp. –	Supplies Exp. –	Utilities Exp. –	Misc. Exp.
a.	+25,000				+25,000							
b.	–20,000		+20,000									
Bal.	5,000		20,000		25,000							
c.		+1,350		+1,350								
Bal.	5,000	+1,350	20,000	+1,350	25,000							
d.	+7,500						+7,500					
Bal.	12,500	1,350	20,000	1,350	25,000		7,500					
e.	–3,650							–2,125	–800		–450	–275
Bal.	8,850	1,350	20,000	1,350	25,000		7,500	–2,125	–800		–450	–275
f.	–950			–950								
Bal.	7,900	1,350	20,000	400	25,000		7,500	–2,125	–800		–450	–275
g.		–800								–800		
Bal.	7,900	550	20,000	400	25,000		7,500	–2,125	–800	–800	–450	–275
h.	–2,000					–2,000						
Bal.	5,900	550	20,000	400	25,000	–2,000	7,500	–2,125	–800	–800	–450	–275

The four types of transactions affecting owner's equity are illustrated in Exhibit 5.

EXHIBIT 5

Types of Transactions Affecting Owner's Equity



Example Exercise 1-3 Transactions

OBJ 4

Salvo Delivery Service is owned and operated by Joel Salvo. The following selected transactions were completed by Salvo Delivery Service during February:

1. Received cash from owner as additional investment, $35,000.
2. Paid creditors on account, $1,800.
3. Billed customers for delivery services on account, $11,250.
4. Received cash from customers on account, $6,740.
5. Paid cash to owner for personal use, $1,000.

Indicate the effect of each transaction on the accounting equation elements (Assets, Liabilities, Owner's Equity, Drawing, Revenue, and Expense). Also, indicate the specific item within the accounting equation element that is affected. To illustrate, the answer to (1) is shown below.

(1) Asset (Cash) increases by $35,000; Owner's Equity (Joel Salvo, Capital) increases by $35,000.

Follow My Example 1-3

(2) Asset (Cash) decreases by $1,800; Liability (Accounts Payable) decreases by $1,800.
(3) Asset (Accounts Receivable) increases by $11,250; Revenue (Delivery Service Fees) increases by $11,250.
(4) Asset (Cash) increases by $6,740; Asset (Accounts Receivable) decreases by $6,740.
(5) Asset (Cash) decreases by $1,000; Drawing (Joel Salvo, Drawing) increases by $1,000.

Practice Exercises: **PE 1-3A, PE 1-3B**

Financial Statements

OBJ. 5 Describe the financial statements of a proprietorship and explain how they interrelate.

After transactions have been recorded and summarized, reports are prepared for users. The accounting reports providing this information are called **financial statements**. The primary financial statements of a proprietorship are the income statement, the statement of owner's equity, the balance sheet, and the statement of cash flows. The order that the financial statements are prepared and the nature of each statement is described as follows.

Order Prepared	Financial Statement	Description of Statement
1.	**Income statement**	A summary of the revenue and expenses *for a specific period of time*, such as a month or a year.
2.	**Statement of owner's equity**	A summary of the changes in the owner's equity that have occurred *during a specific period of time*, such as a month or a year.
3.	**Balance sheet**	A list of the assets, liabilities, and owner's equity *as of a specific date*, usually at the close of the last day of a month or a year.
4.	**Statement of cash flows**	A summary of the cash receipts and cash payments for a *specific period of time*, such as a month or a year.

The four financial statements and their interrelationships are illustrated in Exhibit 6, on page 17. The data for the statements are taken from the summary of transactions of NetSolutions on page 14.

All financial statements are identified by the name of the business, the title of the statement, and the *date* or *period of time*. The data presented in the income statement, the statement of owner's equity, and the statement of cash flows are for a period of time. The data presented in the balance sheet are for a specific date.

Income Statement

The income statement reports the revenues and expenses for a period of time, based on the **matching concept**. This concept is applied by *matching* the expenses incurred during a period with the revenue that those expenses generated. The excess of the revenue over the expenses is called **net income**, net profit, or **earnings**. If the expenses exceed the revenue, the excess is a **net loss**.

Note:
When revenues exceed expenses, it is referred to as *net income, net profits, or earnings.* When expenses exceed revenues, it is referred to as *net loss.*

The revenue and expenses for NetSolutions were shown in the equation as separate increases and decreases. Net income for a period increases the owner's equity (capital) for the period. A net loss decreases the owner's equity (capital) for the period.

The revenue, expenses, and the net income of $3,050 for NetSolutions are reported in the income statement in Exhibit 6, on page 17. The order in which the expenses are listed in the income statement varies among businesses. Most businesses list expenses in order of size, beginning with the larger items. Miscellaneous expense is usually shown as the last item, regardless of the amount.

Example Exercise 1-4 Income Statement

OBJ. 5

The revenues and expenses of Chickadee Travel Service for the year ended April 30, 2012, are listed below.

Fees earned	$263,200
Miscellaneous expense	12,950
Office expense	63,000
Wages expense	131,700

Prepare an income statement for the current year ended April 30, 2012.

(Continued)

Follow My Example 1-4

Chickadee Travel Service
Income Statement
For the Year Ended April 30, 2012

Fees earned		$263,200
Expenses:		
Wages expense	$131,700	
Office expense	63,000	
Miscellaneous expense	12,950	
Total expenses		207,650
Net income		$ 55,550

Practice Exercises: **PE 1-4A, PE 1-4B**

Statement of Owner's Equity

The statement of owner's equity reports the changes in the owner's equity for a period of time. It is prepared *after* the income statement because the net income or net loss for the period must be reported in this statement. Similarly, it is prepared *before* the balance sheet, since the amount of owner's equity at the end of the period must be reported on the balance sheet. Because of this, the statement of owner's equity is often viewed as the connecting link between the income statement and balance sheet.

Three types of transactions affected owner's equity of NetSolutions during November:

1. the original investment of $25,000,
2. the revenue and expenses that resulted in net income of $3,050 for the month, and
3. a withdrawal of $2,000 by the owner.

The preceding information is summarized in the statement of owner's equity in Exhibit 6.

Example Exercise 1-5 Statement of Owner's Equity

OBJ. 5

Using the income statement for Chickadee Travel Service shown in Example Exercise 1-4, prepare a statement of owner's equity for the year ended April 30, 2012. Adam Cellini, the owner, invested an additional $50,000 in the business and withdrew cash of $30,000 for personal use during the year. The capital of the owner, Adam Cellini, was $80,000 on May 1, 2011, the beginning of the current year.

Follow My Example 1-5

Chickadee Travel Service
Statement of Owner's Equity
For the Year Ended April 30, 2012

Adam Cellini, capital, May 1, 2011		$ 80,000
Additional investment by owner during year	$ 50,000	
Net income for the year	55,550	
	$105,550	
Less withdrawals	30,000	
Increase in owner's equity		75,550
Adam Cellini, capital, April 30, 2012		$155,550

Practice Exercises: **PE 1-5A, PE 1-5B**

Balance Sheet

The balance sheet in Exhibit 6 reports the amounts of NetSolutions' assets, liabilities, and owner's equity as of November 30, 2011. The asset and liability amounts are taken from the last line of the summary of transactions on page 14. Chris Clark, Capital

EXHIBIT 6

Financial Statements for NetSolutions

NetSolutions
Income Statement
For the Month Ended November 30, 2011

Fees earned		$7,500
Expenses:		
Wages expense	$2,125	
Rent expense	800	
Supplies expense	800	
Utilities expense	450	
Miscellaneous expense	275	
Total expense		4,450
Net income		$3,050

NetSolutions
Statement of Owner's Equity
For the Month Ended November 30 2011

Chris Clark, capital, November 1, 2011		$ 0
Investment on November 1, 2011	$25,000	
Net income for November	3,050	
	$28,050	
Less withdrawals	2,000	
Increase in owner's equity		26,050
Chris Clark, capital, November 30, 2011		$26,050

NetSolutions
Balance Sheet
November 30, 2011

Assets		**Liabilities**	
Cash	$ 5,900	Accounts payable	$ 400
Supplies	550	**Owner's Equity**	
Land	20,000	Chris Clark, capital	26,050
Total assets	$26,450	Total liabilities and owner's equity	$26,450

NetSolutions
Statement of Cash Flows
For the Month Ended November 30, 2011

Cash flows from operating activities:		
Cash received from customers	$ 7,500	
Deduct cash payments for expenses and payments to creditors	4,600	
Net cash flow from operating activities		$ 2,900
Cash flows from investing activities:		
Cash payments for purchase of land		(20,000)
Cash flows from financing activities:		
Cash received as owner's investment	$25,000	
Deduct cash withdrawal by owner	2,000	
Net cash flow from financing activities		23,000
Net cash flow and November 30, 2011, cash balance		$ 5,900

as of November 30, 2011, is taken from the statement of owner's equity. The form of balance sheet shown in Exhibit 6 is called the **account form**. This is because it resembles the basic format of the accounting equation, with assets on the left side and the liabilities and owner's equity sections on the right side.[3]

Bank loan officers use a business's financial statements in deciding whether to grant a loan to the business. Once the loan is granted, the borrower may be required to maintain a certain level of assets in excess of liabilities. The business's financial statements are used to monitor this level.

The assets section of the balance sheet presents assets in the order that they will be converted into cash or used in operations. Cash is presented first, followed by receivables, supplies, prepaid insurance, and other assets. The assets of a more permanent nature are shown next, such as land, buildings, and equipment.

In the liabilities section of the balance sheet in Exhibit 6, accounts payable is the only liability. When there are two or more liabilities, each should be listed and the total amount of liabilities presented as follows:

Liabilities		
Accounts payable	$12,900	
Wages payable	2,570	
Total liabilities		$15,470

Example Exercise 1-6 Balance Sheet

OBJ 5

Using the following data for Chickadee Travel Service as well as the statement of owner's equity shown in Example Exercise 1-5, prepare a balance sheet as of April 30, 2012.

Accounts receivable	$31,350
Accounts payable	12,200
Cash	53,050
Land	80,000
Supplies	3,350

Follow My Example 1-6

Chickadee Travel Service
Balance Sheet
April 30, 2012

Assets		**Liabilities**	
Cash	$ 53,050	Accounts payable	$ 12,200
Accounts receivable	31,350		
Supplies	3,350	**Owner's Equity**	
Land	80,000	Adam Cellini, capital	155,550
Total assets	$167,750	Total liabilities and owner's equity	$167,750

Practice Exercises: **PE 1-6A, PE 1-6B**

Statement of Cash Flows

The statement of cash flows consists of the following three sections, as shown in Exhibit 6:

1. operating activities,
2. investing activities, and
3. financing activities.

Each of these sections is briefly described below.

Cash Flows from Operating Activities This section reports a summary of cash receipts and cash payments from operations. The net cash flow from operating activities normally differs from the amount of net income for the period. In Exhibit 6, NetSolutions

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[3] An alternative form of balance sheet, called the *report form*, is illustrated in Chapter 6. It presents the liabilities and owner's equity sections below the assets section.

reported net cash flows from operating activities of $2,900 and net income of $3,050. This difference occurs because revenues and expenses may not be recorded at the same time that cash is received from customers or paid to creditors.

Cash Flows from Investing Activities This section reports the cash transactions for the acquisition and sale of relatively permanent assets. Exhibit 6 reports that NetSolutions paid $20,000 for the purchase of land during November.

Cash Flows from Financing Activities This section reports the cash transactions related to cash investments by the owner, borrowings, and withdrawals by the owner. Exhibit 6 shows that Chris Clark invested $25,000 in the business and withdrew $2,000 during November.

Preparing the statement of cash flows requires that each of the November cash transactions for NetSolutions be classified as an operating, investing, or financing activity. Using the summary of transactions shown on page 14, the November cash transactions for NetSolutions are classified as follows:

Transaction	Amount	Cash Flow Activity
a.	$25,000	Financing (Investment by Chris Clark)
b.	-20,000	Investing (Purchase of land)
d.	7,500	Operating (Fees earned)
e.	-3,650	Operating (Payment of expenses)
f.	-950	Operating (Payment of account payable)
h.	-2,000	Financing (Withdrawal by Chris Clark)

Transactions (c) and (g) are not listed above since they did not involve a cash receipt or payment. In addition, the payment of accounts payable in transaction (f) is classified as an operating activity since the account payable arose from the purchase of supplies, which are used in operations. Using the preceding classifications of November cash transactions, the statement of cash flows is prepared as shown in Exhibit 6.[4]

The ending cash balance shown on the statement of cash flows is also reported on the balance sheet as of the end of the period. To illustrate, the ending cash of $5,900 reported on the November statement of cash flows in Exhibit 6 is also reported as the amount of cash on hand in the November 30, 2011, balance sheet.

Since November is NetSolutions' first period of operations, the net cash flow for November and the November 30, 2011, cash balance are the same amount, $5,900, as shown in Exhibit 6. In later periods, NetSolutions will report in its statement of cash flows a beginning cash balance, an increase or a decrease in cash for the period, and an ending cash balance. For example, assume that for December NetSolutions has a decrease in cash of $3,835. The last three lines of NetSolutions' statement of cash flows for December would be as follows:

Decrease in cash	$3,835
Cash as of December 1, 2011	5,900
Cash as of December 31, 2011	$2,065

Example Exercise 1-7 Statement of Cash Flows

OBJ. 5

A summary of cash flows for Chickadee Travel Service for the year ended April 30, 2012, is shown below.

Cash receipts:	
Cash received from customers	$251,000
Cash received from additional investment of owner	50,000
Cash payments:	
Cash paid for expenses	210,000
Cash paid for land	80,000
Cash paid to owner for personal use	30,000

The cash balance as of May 1, 2011, was $72,050. Prepare a statement of cash flows for Chickadee Travel Service for the year ended April 30, 2012.

(Continued)

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[4] This method of preparing the statement of cash flows is called the "direct method." This method and the indirect method are discussed further in Chapter 16.

Follow My Example 1-7

Chickadee Travel Service
Statement of Cash Flows
For the Year Ended April 30, 2012

Cash flows from operating activities:		
Cash received from customers	$251,000	
Deduct cash payments for expenses	210,000	
Net cash flows from operating activities		$ 41,000
Cash flows from investing activities:		
Cash payments for purchase of land		(80,000)
Cash flows from financing activities:		
Cash received from owner as investment	$ 50,000	
Deduct cash withdrawals by owner	30,000	
Net cash flows from financing activities		20,000
Net decrease in cash during year		$(19,000)
Cash as of May 1, 2011		72,050
Cash as of April 30, 2012		$ 53,050

Practice Exercises: **PE 1-7A, PE 1-7B**

Interrelationships Among Financial Statements

Financial statements are prepared in the order of the income statement, statement of owner's equity, balance sheet, and statement of cash flows. This order is important because the financial statements are interrelated. These interrelationships for NetSolutions are shown in Exhibit 6 and are described below.[5]

Financial Statements	Interrelationship	NetSolutions Example (Exhibit 6)
Income Statement *and* Statement of Owner's Equity	Net income or net loss reported on the income statement is also reported on the statement of owner's equity as either an addition (net income) to or deduction (net loss) from the beginning owner's equity and any additional investments by the owner during the period.	NetSolutions' net income of $3,050 for November is added to Chris Clark's investment of $25,000 in the statement of owner's equity.
Statement of Owner's Equity *and* Balance Sheet	Owner's capital at the end of the period reported on the statement of owner's equity is also reported on the balance sheet as owner's capital.	Chris Clark, Capital of $26,050 as of November 30, 2011, on the statement of owner's equity also appears on the November 30, 2011, balance sheet as Chris Clark, Capital.
Balance Sheet *and* Statement of Cash Flows	The cash reported on the balance sheet is also reported as the end-of-period cash on the statement of cash flows.	Cash of $5,900 reported on the balance sheet as of November 30, 2011, is also reported on the November statement of cash flows as the end-of-period cash.

The preceding interrelationships are important in analyzing financial statements and the impact of transactions on a business. In addition, these interrelationships serve as a check on whether the financial statements are prepared correctly. For example, if the ending cash on the statement of cash flows doesn't agree with the balance sheet cash, then an error has occurred.

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[5] Depending on the method of preparing the cash flows from operating activities section of the statement of cash flows, net income (or net loss) may also appear on the statement of cash flows. This interrelationship or method of preparing the statement of cash flows, called the "indirect method," is described and illustrated in Chapter 16.

Financial Analysis and Interpretation: Ratio of Liabilities to Owner's Equity

F•A•I

OBJ. 6 Describe and illustrate the use of the ratio of liabilities to owner's equity in evaluating a company's financial condition.

The basic financial statements illustrated in this chapter are useful to bankers, creditors, owners, and others in analyzing and interpreting the financial performance and condition of a company. Throughout this text, various tools and techniques that are often used to analyze and interpret a company's financial performance and condition are described and illustrated. The first such tool that is discussed is useful in analyzing the ability of a company to pay its creditors.

The relationship between liabilities and owner's equity, expressed as a **ratio of liabilities to owner's equity**, is computed as follows:

$$\text{Ratio of Liabilities to Owner's Equity} = \frac{\text{Total Liabilities}}{\text{Total Owner's Equity (or Total Stockholders' Equity)}}$$

NetSolutions' ratio of liabilities to owner's equity at the end of November is 0.015, as computed below.

$$\text{Ratio of Liabilities to Owner's Equity} = \frac{\$400}{\$26{,}050} = 0.015$$

Corporations refer to total owner's equity as total stockholders' equity. Thus, total stockholders' equity is substituted for total owner's equity when computing this ratio.

To illustrate, balance sheet data (in millions) for Google Inc. and McDonald's Corporation are shown below.

	Dec. 31, 2009	Dec. 31, 2008
Google Inc.		
Total liabilities	$ 3,529	$ 2,646
Total stockholders' equity	28,239	22,690
McDonald's Corporation		
Total liabilities	$15,079	$14,112
Total stockholders' equity	13,383	15,280

The ratio of liabilities to stockholders' equity as of December 31, 2009 and 2008 for Google and McDonald's is computed below.

	Dec. 31, 2009	Dec. 31, 2008
Google Inc.		
Total liabilities	$ 3,529	$ 2,646
Total stockholders' equity	28,239	22,690
Ratio of liabilities to stockholders' equity	0.12	0.12
	($3,529/$28,239)	($2,646/$22,690)
McDonald's Corporation		
Total liabilities	$15,079	$14,112
Total stockholders' equity	13,383	15,280
Ratio of liabilities to stockholders' equity	1.13	0.92
	($15,079/$13,383)	($14,112/$15,280)

The rights of creditors to a business's assets come before the rights of the owners or stockholders. Thus, the lower the ratio of liabilities to owner's equity, the better able the company is to withstand poor business conditions and pay its obligations to creditors.

Google is unusual in that it has a very low amount of liabilities; thus, its ratio of liabilities to stockholders' equity of 0.12 is small. In contrast, McDonald's has more

liabilities; its ratio of liabilities to stockholders' equity is 1.13 and 0.92 on December 31, 2009 and 2008, respectively. Since McDonald's ratio of liabilities to stockholders' equity increased slightly from 2008 to 2009, its creditors are slightly more at risk on December 31, 2009, as compared to December 31, 2008. Also, McDonald's creditors are more at risk than are Google's creditors. The creditors of both companies are, however, well protected against the risk of nonpayment.

Example Exercise 1-8 Ratio of Liabilities to Owner's Equity

OBJ. 6

The following data were taken from Hawthorne Company's balance sheet:

	Dec. 31, 2012	Dec. 31, 2011
Total liabilities	$120,000	$105,000
Total owner's equity	80,000	75,000

a. Compute the ratio of liabilities to owner's equity.
b. Has the creditors' risk increased or decreased from December 31, 2011, to December 31, 2012?

Follow My Example 1-8

a.

	Dec. 31, 2012	Dec. 31, 2011
Total liabilities	$120,000	$105,000
Total owner's equity	80,000	75,000
Ratio of liabilities to owner's equity	1.50	1.40
	($120,000/$80,000)	($105,000/$75,000)

b. Increased

Practice Exercises: **PE 1-8A, PE 1-8B**

At a Glance 1

OBJ. 1

Describe the nature of a business, the role of accounting, and ethics in business.

Key Points A business provides goods or services (outputs) to customers with the objective of earning a profit. Three types of businesses include service, merchandising, and manufacturing businesses.

Accounting is an information system that provides reports to users about the economic activities and condition of a business.

Ethics are moral principles that guide the conduct of individuals. Good ethical conduct depends on individual character and firm culture.

Accountants are engaged in private accounting or public accounting.

Learning Outcomes	Example Exercises	Practice Exercises
• Distinguish among service, merchandising, and manufacturing businesses.		
• Describe the role of accounting in business and explain why accounting is called the "language of business."		
• Define ethics and list the two factors affecting ethical conduct.		
• Describe what private and public accounting means.		

OBJ. 2 Summarize the development of accounting principles and relate them to practice.

Key Points Generally accepted accounting principles (GAAP) are used in preparing financial statements. Accounting principles and concepts develop from research, practice, and pronouncements of authoritative bodies.

The business entity concept views the business as an entity separate from its owners, creditors, or other businesses. Businesses may be organized as proprietorships, partnerships, corporations, and limited liability companies. The cost concept requires that purchases of a business be recorded in terms of actual cost. The objectivity concept requires that the accounting records and reports be based on objective evidence. The unit of measure concept requires that economic data be recorded in dollars.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Explain what is meant by generally accepted accounting principles.		
• Describe how generally accepted accounting principles are developed.		
• Describe and give an example of what is meant by the business entity concept.		
• Describe the characteristics of a proprietorship, partnership, corporation, and limited liability company.		
• Describe and give an example of what is meant by the cost concept.	**EE1-1**	**PE1-1A, 1-1B**
• Describe and give an example of what is meant by the objectivity concept.		
• Describe and give an example of what is meant by the unit of measure concept.		

OBJ. 3 State the accounting equation and define each element of the equation.

Key Points The resources owned by a business and the rights or claims to these resources may be stated in the form of an equation, as follows:

Assets = Liabilities + Owner's Equity

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• State the accounting equation.		
• Define assets, liabilities, and owner's equity.		
• Given two elements of the accounting equation, solve for the third element.	**EE1-2**	**PE1-2A, 1-2B**

OBJ. 4 Describe and illustrate how business transactions can be recorded in terms of the resulting change in the elements of the accounting equation.

Key Points All business transactions can be stated in terms of the change in one or more of the three elements of the accounting equation.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Define a business transaction.		
• Using the accounting equation as a framework, record transactions.	**EE1-3**	**PE1-3A, 1-3B**

OBJ. 5

Describe the financial statements of a proprietorship and explain how they interrelate.

Key Points The primary financial statements of a proprietorship are the income statement, the statement of owner's equity, the balance sheet, and the statement of cash flows. The income statement reports a period's net income or net loss, which is also reported on the statement of owner's equity. The ending owner's capital reported on the statement of owner's equity is also reported on the balance sheet. The ending cash balance is reported on the balance sheet and the statement of cash flows.

Learning Outcomes	Example Exercises	Practice Exercises
• List and describe the financial statements of a proprietorship.		
• Prepare an income statement.	EE1-4	PE1-4A, 1-4B
• Prepare a statement of owner's equity.	EE1-5	PE1-5A, 1-5B
• Prepare a balance sheet.	EE1-6	PE1-6A, 1-6B
• Prepare a statement of cash flows.	EE1-7	PE1-7A, 1-7B
• Explain how the financial statements of a proprietorship are interrelated.		

OBJ. 6

Describe and illustrate the use of the ratio of liabilities to owner's equity in evaluating a company's financial condition.

Key Points A ratio useful in analyzing the ability of a business to pay its creditors is the ratio of liabilities to owner's (stockholders') equity. The lower the ratio of liabilities to owner's equity, the better able the company is to withstand poor business conditions and pay its obligations to creditors.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the usefulness of the ratio of liabilities to owner's (stockholders') equity.		
• Compute the ratio of liabilities to owner's (stockholders') equity.	EE1-8	PE1-8A, 1-8B

Key Terms

account form (18)
account payable (11)
account receivable (12)
accounting (3)
accounting equation (9)
assets (9)
balance sheet (15)
business (2)
business entity concept (7)
business transaction (9)
Certified Public Accountant (CPA) (6)
corporation (8)
cost concept (8)
earnings (15)
ethics (4)
expenses (12)
fees earned (12)
financial accounting (3)
Financial Accounting Standards Board (FASB) (7)
financial statements (15)
general-purpose financial statements (4)
generally accepted accounting principles (GAAP) (6)
income statement (15)
interest revenue (12)
International Accounting Standards Board (IASB) (7)
liabilities (9)
limited liability company (LLC) (8)
management (or managerial) accounting (3)
manufacturing business (2)
matching concept (15)
merchandising business (2)
net income (or net profit) (15)

net loss (15)
objectivity concept (8)
owner's equity (9)
partnership (7)
prepaid expenses (11)
private accounting (3)
profit (2)
proprietorship (7)
public accounting (6)
ratio of liabilities to owner's (stockholders') equity (21)
rent revenue (12)
revenue (11)
sales (12)
Securities and Exchange Commission (SEC) (7)
service business (2)
statement of cash flows (15)
statement of owner's equity (15)
unit of measure concept (8)

Illustrative Problem

Cecil Jameson, Attorney-at-Law, is a proprietorship owned and operated by Cecil Jameson. On July 1, 2011, Cecil Jameson, Attorney-at-Law, has the following assets and liabilities: cash, $1,000; accounts receivable, $3,200; supplies, $850; land, $10,000; accounts payable, $1,530. Office space and office equipment are currently being rented, pending the construction of an office complex on land purchased last year. Business transactions during July are summarized as follows:

a. Received cash from clients for services, $3,928.
b. Paid creditors on account, $1,055.
c. Received cash from Cecil Jameson as an additional investment, $3,700.
d. Paid office rent for the month, $1,200.
e. Charged clients for legal services on account, $2,025.
f. Purchased supplies on account, $245.
g. Received cash from clients on account, $3,000.
h. Received invoice for paralegal services from Legal Aid Inc. for July (to be paid on August 10), $1,635.
i. Paid the following: wages expense, $850; answering service expense, $250; utilities expense, $325; and miscellaneous expense, $75.
j. Determined that the cost of supplies on hand was $980; therefore, the cost of supplies used during the month was $115.
k. Jameson withdrew $1,000 in cash from the business for personal use.

Instructions

1. Determine the amount of owner's equity (Cecil Jameson's capital) as of July 1, 2011.
2. State the assets, liabilities, and owner's equity as of July 1 in equation form similar to that shown in this chapter. In tabular form below the equation, indicate the increases and decreases resulting from each transaction and the new balances after each transaction.
3. Prepare an income statement for July, a statement of owner's equity for July, and a balance sheet as of July 31, 2011.
4. (Optional). Prepare a statement of cash flows for July.

Solution

1.

Assets – Liabilities = Owner's Equity (Cecil Jameson, capital)
($1,000 + $3,200 + $850 + $10,000) – $1,530 = Owner's Equity (Cecil Jameson, capital)
$15,050 – $1,530 = Owner's Equity (Cecil Jameson, capital)
$13,520 = Owner's Equity (Cecil Jameson, capital)

2.

	Assets				= Liabilities +	Owner's Equity									
	Cash +	Accts. Rec. +	Supp. +	Land =	Accts Pay. +	Cecil Jameson, Capital –	Cecil Jameson, Drawing +	Fees Earned –	Paralegal Exp. –	Rent Exp. –	Wages Exp. –	Utilities Exp. –	Answering Service Exp. –	Supp Exp. –	Misc. Exp.
Bal.	1,000	3,200	850	10,000	1,530	13,520									
a.	+3,928							3,928							
Bal.	4,928	3,200	850	10,000	1,530	13,520		3,928							
b.	–1,055				–1,055										
Bal.	3,873	3,200	850	10,000	475	13,520		3,928							
c.	+3,700					+3,700									
Bal.	7,573	3,200	850	10,000	475	17,220		3,928							
d.	–1,200									–1,200					
Bal.	6,373	3,200	850	10,000	475	17,220		3,928		–1,200					
e.		+ 2,025						+ 2,025							
Bal.	6,373	5,225	850	10,000	475	17,220		5,953		–1,200					
f.			+245		+245										
Bal.	6,373	5,225	1,095	10,000	720	17,220		5,953		–1,200					
g.	+3,000	–3,000													
Bal.	9,373	2,225	1,095	10,000	720	17,220		5,953		–1,200					
h.					+1,635				–1,635						
Bal.	9,373	2,225	1,095	10,000	2,355	17,220		5,953	–1,635	–1,200					
i.	–1,500										–850	–325	–250		–75
Bal.	7,873	2,225	1,095	10,000	2,355	17,220		5,953	–1,635	–1,200	–850	–325	–250		–75
j.			–115											–115	
Bal.	7,873	2,225	980	10,000	2,355	17,220		5,953	–1,635	–1,200	–850	–325	–250	–115	–75
k.	–1,000						–1,000								
Bal.	6,873	2,225	980	10,000	2,355	17,220	–1,000	5,953	–1,635	–1,200	–850	–325	–250	–115	–75

3.

Cecil Jameson, Attorney-at-Law
Income Statement
For the Month Ended July 31, 2011

Fees earned		$5,953
Expenses:		
Paralegal expense	$1,635	
Rent expense	1,200	
Wages expense	850	
Utilities expense	325	
Answering service expense	250	
Supplies expense	115	
Miscellaneous expense	75	
Total expenses		4,450
Net income		$1,503

Cecil Jameson, Attorney-at-Law
Statement of Owner's Equity
For the Month Ended July 31, 2011

Cecil Jameson, capital, July 1, 2011		$13,520
Additional investment by owner	$3,700	
Net income for the month	1,503	
	$5,203	
Less withdrawals	1,000	
Increase in owner's equity		4,203
Cecil Jameson, capital, July 31, 2011		$17,723

(continued)

Cecil Jameson, Attorney-at-Law
Balance Sheet
July 31, 2011

Assets		**Liabilities**	
Cash	$ 6,873	Accounts payable	$ 2,355
Accounts receivable	2,225	**Owner's Equity**	
Supplies	980	Cecil Jameson, capital	17,723
Land	10,000	Total liabilities and owner's equity	$20,078
Total assets	$20,078		

4. Optional.

Cecil Jameson, Attorney-at-Law
Statement of Cash Flows
For the Month Ended July 31, 2011

Cash flows from operating activities:		
Cash received from customers	$6,928*	
Deduct cash payments for operating expenses	3,755**	
Net cash flows from operating activities		$3,173
Cash flows from investing activities		—
Cash flows from financing activities:		
Cash received from owner as investment	$3,700	
Deduct cash withdrawals by owner	1,000	
Net cash flows from financing activities		2,700
Net increase in cash during year		$5,873
Cash as of July 1, 2011		1,000
Cash as of July 31, 2011		$6,873

*$6,928 = $3,928 + $3,000
**$3,755 = $1,055 + $1,200 + $1,500

Discussion Questions

1. Name some users of accounting information.
2. What is the role of accounting in business?
3. Why are most large companies like Microsoft, PepsiCo, Caterpillar, and AutoZone organized as corporations?
4. Murray Stoltz is the owner of Ontime Delivery Service. Recently, Murray paid interest of $3,200 on a personal loan of $60,000 that he used to begin the business. Should Ontime Delivery Service record the interest payment? Explain.
5. On October 3, A2Z Repair Service extended an offer of $75,000 for land that had been priced for sale at $90,000. On November 23, A2Z Repair Service accepted the seller's counteroffer of $82,000. Describe how A2Z Repair Service should record the land.
6. a. Land with an assessed value of $400,000 for property tax purposes is acquired by a business for $525,000. Ten years later, the plot of land has an assessed value of $700,000 and the business receives an offer of $1,000,000 for it. Should the monetary amount assigned to the land in the business records now be increased?
   b. Assuming that the land acquired in (a) was sold for $1,000,000, how would the various elements of the accounting equation be affected?

7. Describe the difference between an account receivable and an account payable.
8. A business had revenues of $430,000 and operating expenses of $615,000. Did the business (a) incur a net loss or (b) realize net income?
9. A business had revenues of $825,000 and operating expenses of $708,000. Did the business (a) incur a net loss or (b) realize net income?
10. What particular item of financial or operating data appears on both the income statement and the statement of owner's equity? What item appears on both the balance sheet and the statement of owner's equity? What item appears on both the balance sheet and the statement of cash flows?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 2 **EE 1-1** *p. 8*

PE 1-1A Cost concept

On June 10, Easy Repair Service extended an offer of $95,000 for land that had been priced for sale at $118,500. On August 2, Easy Repair Service accepted the seller's counteroffer of $105,000. On August 27, the land was assessed at a value of $80,000 for property tax purposes. On April 1, Easy Repair Service was offered $125,000 for the land by a national retail chain. At what value should the land be recorded in Easy Repair Service's records?

OBJ. 2 **EE 1-1** *p. 8*

PE 1-1B Cost concept

On February 7, AAA Repair Service extended an offer of $50,000 for land that had been priced for sale at $65,000. On February 21, AAA Repair Service accepted the seller's counteroffer of $57,500. On April 30, the land was assessed at a value of $40,000 for property tax purposes. On August 30, AAA Repair Service was offered $90,000 for the land by a national retail chain. At what value should the land be recorded in AAA Repair Service's records?

OBJ. 3 **EE 1-2** *p. [illegible]*

PE 1-2A Accounting equation

Shannon Cook is the owner and operator of Galaxy LLC, a motivational consulting business. At the end of its accounting period, December 31, 2011, Galaxy has assets of $800,000 and liabilities of $450,000. Using the accounting equation, determine the following amounts:

a. Owner's equity, as of December 31, 2011.

b. Owner's equity, as of December 31, 2012, assuming that assets increased by $175,000 and liabilities decreased by $60,000 during 2012.

OBJ. 3 **EE 1-2** *p. [illegible]*

PE 1-2B Accounting equation

Jan Petri is the owner and operator of You're the One, a motivational consulting business. At the end of its accounting period, December 31, 2011, You're the One has assets of $575,000 and liabilities of $125,000. Using the accounting equation, determine the following amounts:

a. Owner's equity, as of December 31, 2011.

b. Owner's equity, as of December 31, 2012, assuming that assets increased by $85,000 and liabilities increased by $30,000 during 2012.

OBJ. 4 **EE 1-3** *p. 14*

PE 1-3A Transactions

Queens Delivery Service is owned and operated by Lisa Dewar. The following selected transactions were completed by Queens Delivery Service during June:

1. Received cash from owner as additional investment, $18,000.
2. Paid creditors on account, $1,800.
3. Billed customers for delivery services on account, $12,500.
4. Received cash from customers on account, $6,900.
5. Paid cash to owner for personal use, $4,000.

Indicate the effect of each transaction on the accounting equation elements (Assets, Liabilities, Owner's Equity, Drawing, Revenue, and Expense). Also, indicate the specific item within the accounting equation element that is affected. To illustrate, the answer to (1) is shown below.

(1) Asset (Cash) increases by $18,000; Owner's Equity (Lisa Dewar, Capital) increases by $18,000.

Learning Objectives *Example Exercises*

OBJ. 4 EE 1-3 *p. 14*

PE 1-3B Transactions

Motorcross Delivery Service is owned and operated by Jim Smith. The following selected transactions were completed by Motorcross Delivery Service during February:

1. Received cash from owner as additional investment, $30,000.
2. Paid advertising expense, $1,200.
3. Purchased supplies on account, $450.
4. Billed customers for delivery services on account, $7,500.
5. Received cash from customers on account, $4,900.

Indicate the effect of each transaction on the accounting equation elements (Assets, Liabilities, Owner's Equity, Drawing, Revenue, and Expense). Also, indicate the specific item within the accounting equation element that is affected. To illustrate, the answer to (1) is shown below.

(1) Asset (Cash) increases by $30,000; Owner's Equity (Jim Smith, Capital) increases by $30,000.

OBJ. 5 EE 1-4 *p. 16*

PE 1-4A Income statement

The revenues and expenses of Dynasty Travel Service for the year ended June 30, 2012, are listed below.

Fees earned	$950,000
Office expense	222,000
Miscellaneous expense	16,000
Wages expense	478,000

Prepare an income statement for the current year ended June 30, 2012.

OBJ. 5 EE 1-4 *p. 16*

PE 1-4B Income statement

The revenues and expenses of Escape Travel Service for the year ended November 30, 2012, are listed below.

Fees earned	$942,500
Office expense	391,625
Miscellaneous expense	15,875
Wages expense	562,500

Prepare an income statement for the current year ended November 30, 2012.

OBJ. 5 EE 1-5 *p. 16*

PE 1-5A Statement of owner's equity

Using the income statement for Dynasty Travel Service shown in Practice Exercise 1-4A, prepare a statement of owner's equity for the current year ended June 30, 2012. Nancy Coleman, the owner, invested an additional $60,000 in the business during the year and withdrew cash of $36,000 for personal use. Nancy Coleman, capital as of July 1, 2011, was $250,000.

OBJ. 5 EE 1-5 *p. 16*

PE 1-5B Statement of owner's equity

Using the income statement for Escape Travel Service shown in Practice Exercise 1-4B, prepare a statement of owner's equity for the current year ended November 30, 2012. Brett Daniels, the owner, invested an additional $45,000 in the business during the year and withdrew cash of $25,000 for personal use. Brett Daniels, capital as of December 1, 2011, was $475,000.

OBJ. 5 EE 1-6 *p. 18*

PE 1-6A Balance sheet

Using the following data for Dynasty Travel Service as well as the statement of owner's equity shown in Practice Exercise 1-5A, prepare a balance sheet as of June 30, 2012.

Learning Objectives *Example Exercises*

Accounts receivable	$ 64,000
Accounts payable	24,000
Cash	156,000
Land	300,000
Supplies	12,000

OBJ. 5 **EE 1-6** *p. 18*

PE 1-6B Balance sheet

Using the following data for Escape Travel Service as well as the statement of owner's equity shown in Practice Exercise 1-5B, prepare a balance sheet as of November 30, 2012.

Accounts receivable	$ 94,375
Accounts payable	52,500
Cash	56,750
Land	362,500
Supplies	6,375

OBJ. 5 **EE 1-7** *p. 20*

PE 1-7A Statement of cash flows

A summary of cash flows for Dynasty Travel Service for the year ended June 30, 2012, is shown below.

Cash receipts:	
Cash received from customers	$920,000
Cash received from additional investment of owner	60,000
Cash payments:	
Cash paid for operating expenses	710,000
Cash paid for land	208,000
Cash paid to owner for personal use	36,000

The cash balance as of July 1, 2011, was $130,000.

Prepare a statement of cash flows for Dynasty Travel Service for the year ended June 30, 2012.

OBJ. 5 **EE 1-7** *p. 20*

PE 1-7B Statement of cash flows

A summary of cash flows for Escape Travel Service for the year ended November 30, 2012, is shown below.

Cash receipts:	
Cash received from customers	$875,000
Cash received from additional investment of owner	45,000
Cash payments:	
Cash paid for operating expenses	912,500
Cash paid for land	67,500
Cash paid to owner for personal use	25,000

The cash balance as of December 1, 2011, was $141,750.

Prepare a statement of cash flows for Escape Travel Service for the year ended November 30, 2012.

OBJ. 6 **EE 1-8** *p. 22*

FAI

PE 1-8A Ratio of liabilities to owner's equity

The following data were taken from White Company's balance sheet:

	Dec. 31, 2012	Dec. 31, 2011
Total liabilities	$375,000	$287,500
Total owner's equity	300,000	250,000

a. Compute the ratio of liabilities to owner's equity.

b. Has the creditor's risk increased or decreased from December 31, 2011 to December 31, 2012?

Learning Objectives *Example Exercises*

OBJ. 6 EE 1-8 p. 22

FAI

PE 1-8B Ratio of liabilities to owner's equity

The following data were taken from Stone Company's balance sheet:

	Dec. 31, 2012	Dec. 31, 2011
Total liabilities	$340,000	$300,000
Total owner's equity	500,000	400,000

a. Compute the ratio of liabilities to owner's equity.

b. Has the creditor's risk increased or decreased from December 31, 2011 to December 31, 2012?

Exercises

OBJ. 1

EX 1-1 Types of businesses

The following is a list of well-known companies.

1. H&R Block
2. eBay Inc.
3. Wal-Mart Stores, Inc.
4. Ford Motor Company
5. Citigroup
6. Boeing
7. SunTrust
8. Alcoa Inc.
9. Procter & Gamble
10. FedEx
11. Gap Inc.
12. Hilton Hospitality, Inc.
13. CVS
14. Caterpillar
15. The Dow Chemical Company

a. Indicate whether each of these companies is primarily a service, merchandise, or manufacturing business. If you are unfamiliar with the company, use the Internet to locate the company's home page or use the finance Web site of **Yahoo** (http://finance.yahoo.com).

b. For which of the preceding companies is the accounting equation relevant?

OBJ. 1

EX 1-2 Professional ethics

A fertilizer manufacturing company wants to relocate to Jones County. A report from a fired researcher at the company indicates the company's product is releasing toxic by-products. The company suppressed that report. A later report commissioned by the company shows there is no problem with the fertilizer.

Should the company's chief executive officer reveal the content of the unfavorable report in discussions with Jones County representatives? Discuss.

OBJ. 2

EX 1-3 Business entity concept

Rocky Mountain Sports sells hunting and fishing equipment and provides guided hunting and fishing trips. Rocky Mountain Sports is owned and operated by Mike Weber, a well-known sports enthusiast and hunter. Mike's wife, Susan, owns and operates Madison Boutique, a women's clothing store. Mike and Susan have established a trust fund to finance their children's college education. The trust fund is maintained by National Bank in the name of the children, Kerri and Kyle.

a. For each of the following transactions, identify which of the entities listed should record the transaction in its records.

Entities	
R	Rocky Mountain Sports
B	National Bank Trust Fund
M	Madison Boutique
X	None of the above

1. Susan authorized the trust fund to purchase mutual fund shares.
2. Susan purchased two dozen spring dresses from a Chicago designer for a special spring sale.
3. Mike paid a breeder's fee for an English springer spaniel to be used as a hunting guide dog.
4. Susan deposited a $3,000 personal check in the trust fund at National Bank.
5. Mike paid a local doctor for his annual physical, which was required by the workmen's compensation insurance policy carried by Rocky Mountain Sports.
6. Mike received a cash advance from customers for a guided hunting trip.
7. Susan paid her dues to the YWCA.
8. Susan donated several dresses from inventory for a local charity auction for the benefit of a women's abuse shelter.
9. Mike paid for dinner and a movie to celebrate their fifteenth wedding anniversary.
10. Mike paid for an advertisement in a hunters' magazine.

b. What is a business transaction?

OBJ. 3

✔ Starbucks, $3,046

EX 1-4 Accounting equation

The total assets and total liabilities of Peat's Coffee & Tea Inc. and Starbucks Corporation are shown below.

	Peat's Coffee & Tea (in millions)	Starbucks (in millions)
Assets	$176	$5,577
Liabilities	32	2,531

Determine the owners' equity of each company.

OBJ. 3

✔ Dollar Tree, $1,253

EX 1-5 Accounting equation

The total assets and total liabilities of Dollar Tree Inc. and Target Corporation are shown below.

	Dollar Tree (in millions)	Target Corporation (in millions)
Assets	$2,036	$44,106
Liabilities	783	30,394

Determine the owners' equity of each company.

OBJ. 3

✔ a. 600,000

EX 1-6 Accounting equation

Determine the missing amount for each of the following:

	Assets	=	Liabilities	+	Owner's Equity
a.	×	=	$150,000	+	$450,000
b.	$275,000	=	×	+	50,000
c.	615,000	=	190,000	+	×

OBJ. 3, 4

✔ b. $530,000

EX 1-7 Accounting equation

Todd Olson is the owner and operator of Alpha, a motivational consulting business. At the end of its accounting period, December 31, 2011, Alpha has assets of $800,000 and liabilities of $350,000. Using the accounting equation and considering each case independently, determine the following amounts:

a. Todd Olson, capital, as of December 31, 2011.

b. Todd Olson, capital, as of December 31, 2012, assuming that assets increased by $150,000 and liabilities increased by $70,000 during 2012.

c. Todd Olson, capital, as of December 31, 2012, assuming that assets decreased by $60,000 and liabilities increased by $20,000 during 2012.

d. Todd Olson, capital, as of December 31, 2012, assuming that assets increased by $100,000 and liabilities decreased by $40,000 during 2012.

e. Net income (or net loss) during 2012, assuming that as of December 31, 2012, assets were $975,000, liabilities were $400,000, and there were no additional investments or withdrawals.

OBJ. 3

EX 1-8 Asset, liability, owner's equity items

Indicate whether each of the following is identified with (1) an asset, (2) a liability, or (3) owner's equity:

a. cash
b. wages expense
c. accounts payable
d. fees earned
e. supplies
f. land

OBJ. 4

EX 1-9 Effect of transactions on accounting equation

Describe how the following business transactions affect the three elements of the accounting equation.

a. Invested cash in business.
b. Purchased supplies for cash.
c. Purchased supplies on account.
d. Received cash for services performed.
e. Paid for utilities used in the business.

OBJ. 4

✓ a. (1) increase $250,000

EX 1-10 Effect of transactions on accounting equation

a. A vacant lot acquired for $100,000 is sold for $350,000 in cash. What is the effect of the sale on the total amount of the seller's (1) assets, (2) liabilities, and (3) owner's equity?
b. Assume that the seller owes $75,000 on a loan for the land. After receiving the $350,000 cash in (a), the seller pays the $75,000 owed. What is the effect of the payment on the total amount of the seller's (1) assets, (2) liabilities, and (3) owner's equity?
c. Is it true that a transaction always affects at least two elements (Assets, Liabilities, or Owner's Equity) of the accounting equation? Explain.

OBJ. 4

EX 1-11 Effect of transactions on owner's equity

Indicate whether each of the following types of transactions will either (a) increase owner's equity or (b) decrease owner's equity:

1. owner's investments
2. revenues
3. expenses
4. owner's withdrawals

OBJ. 4

EX 1-12 Transactions

The following selected transactions were completed by Speedy Delivery Service during October:

1. Received cash from owner as additional investment, $30,000.
2. Purchased supplies for cash, $1,500.
3. Paid rent for October, $4,000.
4. Paid advertising expense, $2,500.
5. Received cash for providing delivery services, $18,750.
6. Billed customers for delivery services on account, $41,500.
7. Paid creditors on account, $6,000.
8. Received cash from customers on account, $26,200.
9. Determined that the cost of supplies on hand was $250; therefore, $1,250 of supplies had been used during the month.
10. Paid cash to owner for personal use, $2,000.

Indicate the effect of each transaction on the accounting equation by listing the numbers identifying the transactions, (1) through (10), in a column, and inserting at the right of each number the appropriate letter from the following list:

a. Increase in an asset, decrease in another asset.

b. Increase in an asset, increase in a liability.

c. Increase in an asset, increase in owner's equity.

d. Decrease in an asset, decrease in a liability.

e. Decrease in an asset, decrease in owner's equity.

OBJ. 4

✔ d. $13,200

EX 1-13 Nature of transactions

Jeremy Zabel operates his own catering service. Summary financial data for February are presented in equation form as follows. Each line designated by a number indicates the effect of a transaction on the equation. Each increase and decrease in owner's equity, except transaction (5), affects net income.

	Assests			= Liabilities +	Owner's Equity			
	Cash	+ Supplies +	Land	= Accounts Payable +	Jeremy Zabel, Capital	– Jeremy Zabel, Drawing +	Fees Earned	– Expenses
Bal.	25,000	2,000	75,000	12,000	90,000			
1.	+29,000						29,000	
2.	–20,000		+20,000					
3.	–14,000							–14,000
4.		+1,000		+1,000				
5.	– 2,000					–2,000		
6.	– 7,000			–7,000				
7.		–1800						–1,800
Bal.	11,000	1,200	95,000	6,000	90,000	–2,000	29,000	–15,800

a. Describe each transaction.

b. What is the amount of net decrease in cash during the month?

c. What is the amount of net increase in owner's equity during the month?

d. What is the amount of the net income for the month?

e. How much of the net income for the month was retained in the business?

OBJ. 5

EX 1-14 Net income and owner's withdrawals

The income statement of a proprietorship for the month of December indicates a net income of $120,000. During the same period, the owner withdrew $130,000 in cash from the business for personal use.

Would it be correct to say that the business incurred a net loss of $10,000 during the month? Discuss.

OBJ. 5

✔ Leo: Net income, $60,000

EX 1-15 Net income and owner's equity for four businesses

Four different proprietorships, Aries, Gemini, Leo, and Pisces, show the same balance sheet data at the beginning and end of a year. These data, exclusive of the amount of owner's equity, are summarized as follows:

	Total Assets	Total Liabilities
Beginning of the year	$400,000	$100,000
End of the year	750,000	300,000

On the basis of the above data and the following additional information for the year, determine the net income (or loss) of each company for the year. (*Hint:* First determine the amount of increase or decrease in owner's equity during the year.)

Aries: The owner had made no additional investments in the business and had made no withdrawals from the business.

Gemini: The owner had made no additional investments in the business but had withdrawn $40,000.

Leo: The owner had made an additional investment of $90,000 but had made no withdrawals.

Pisces: The owner had made an additional investment of $90,000 and had withdrawn $40,000.

OBJ. 5

EX 1-16 Balance sheet items

From the following list of selected items taken from the records of Hoosier Appliance Service as of a specific date, identify those that would appear on the balance sheet:

1. Accounts Receivable
2. Cash
3. Fees Earned
4. Land
5. Patsy Adkins, Capital
6. Supplies
7. Supplies Expense
8. Utilities Expense
9. Wages Expense
10. Wages Payable

OBJ. 5

EX 1-17 Income statement items

Based on the data presented in Exercise 1-16, identify those items that would appear on the income statement.

OBJ. 5

✔ Penny Beall, capital, June 30, 2012: $482,000

EX 1-18 Statement of owner's equity

Financial information related to Lost Trail Company, a proprietorship, for the month ended June 30, 2012, is as follows:

Net income for June	$125,000
Penny Beall's withdrawals during June	18,000
Penny Beall's capital, June 1, 2012	375,000

a. Prepare a statement of owner's equity for the month ended June 30, 2012.

b. Why is the statement of owner's equity prepared before the June 30, 2012, balance sheet?

OBJ. 5

✔ Net income: $449,000

EX 1-19 Income statement

Universal Services was organized on October 1, 2012. A summary of the revenue and expense transactions for October follows:

Fees earned	$800,000
Wages expense	270,000
Rent expense	60,000
Supplies expense	9,000
Miscellaneous expense	12,000

Prepare an income statement for the month ended October 31.

OBJ. 5

✔ (a) $45,000

EX 1-20 Missing amounts from balance sheet and income statement data

One item is omitted in each of the following summaries of balance sheet and income statement data for the following four different proprietorships:

	Aquarius	Libra	Scorpio	Taurus
Beginning of the year:				
Assets	$300,000	$500,000	$100,000	(d)
Liabilities	120,000	260,000	76,000	$120,000
End of the year:				
Assets	420,000	700,000	90,000	248,000
Liabilities	110,000	220,000	80,000	136,000
During the year:				
Additional investment in the business	(a)	100,000	10,000	40,000
Withdrawals from the business	25,000	32,000	(c)	60,000
Revenue	190,000	(b)	115,000	112,000
Expenses	80,000	128,000	122,500	128,000

Determine the missing amounts, identifying them by letter. (*Hint:* First determine the amount of increase or decrease in owner's equity during the year.)

OBJ. 5

✓ b. $40,000

EX 1-21 Balance sheets, net income

Financial information related to the proprietorship of Lady Interiors for July and August 2012 is as follows:

	July 31, 2012	August 31, 2012
Accounts payable	$ 90,000	$100,000
Accounts receivable	200,000	240,000
Garth Jacobs, capital	?	?
Cash	80,000	95,000
Supplies	20,000	15,000

a. Prepare balance sheets for Lady Interiors as of July 31 and August 31, 2012.

b. Determine the amount of net income for August, assuming that the owner made no additional investments or withdrawals during the month.

c. Determine the amount of net income for August, assuming that the owner made no additional investments but withdrew $35,000 during the month.

OBJ. 5

EX 1-22 Financial statements

Each of the following items is shown in the financial statements of ExxonMobil Corporation.

1. Accounts payable
2. Cash equivalents
3. Crude oil inventory
4. Equipment
5. Exploration expenses
6. Income taxes payable
7. Investments
8. Long-term debt
9. Marketable securities
10. Notes and loans payable
11. Notes receivable
12. Operating expenses
13. Prepaid taxes
14. Sales
15. Selling expenses

a. Identify the financial statement (balance sheet or income statement) in which each item would appear.

b. Can an item appear on more than one financial statement?

c. Is the accounting equation relevant for ExxonMobil Corporation?

OBJ. 5

EX 1-23 Statement of cash flows

Indicate whether each of the following activities would be reported on the statement of cash flows as (a) an operating activity, (b) an investing activity, or (c) a financing activity:

1. Cash received from fees earned.
2. Cash paid for expenses.
3. Cash paid for land.
4. Cash received as an additional investment by owner.

OBJ. 5

EX 1-24 Statement of cash flows

A summary of cash flows for Absolute Consulting Group for the year ended July 31, 2012, is shown below.

Cash receipts:	
Cash received from customers	$187,500
Cash received from additional investment of owner	40,000
Cash payments:	
Cash paid for operating expenses	127,350
Cash paid for land	30,000
Cash paid to owner for personal use	5,000

The cash balance as of August 1, 2011, was $27,100.

Prepare a statement of cash flows for Absolute Consulting Group for the year ended July 31, 2012.

OBJ. 5

✔ Correct amount of total assets is $88,200.

EX 1-25 Financial statements

Empire Realty, organized May 1, 2012, is owned and operated by Bertram Mitchell. How many errors can you find in the following statements for Empire Realty, prepared after its first month of operations?

Empire Realty
Income Statement
May 31, 2012

Sales commissions		$233,550
Expenses:		
Office salaries expense	$145,800	
Rent expense	49,500	
Automobile expense	11,250	
Miscellaneous expense	3,600	
Supplies expense	1,350	
Total expenses		211,500
Net income		$ 67,050

Bertram Mitchell
Statement of Owner's Equity
May 31, 2011

Bertram Mitchell, capital, May 1, 2012	$ 46,800
Less withdrawals during May	9,000
	$ 37,800
Additional investment during May	11,250
	$ 49,050
Net income for May	67,050
Bertram Mitchell, capital, May 31, 2012	$ 116,100

Balance Sheet
For the Month Ended May 31, 2012

Assets		**Liabilities**	
Cash	$14,850	Accounts receivable	$ 64,350
Accounts payable	17,100	Supplies	9,000
		Owner's Equity	
		Bertram Mitchell, capital	116,100
Total assets	$31,950	Total liabilities and owner's equity	$189,450

OBJ. 6

EX 1-26 Ratio of liabilities to stockholders' equity

The Home Depot, Inc., is the world's largest home improvement retailer and one of the largest retailers in the United States based on net sales volume. The Home Depot operates over 2,000 Home Depot® stores that sell a wide assortment of building materials and home improvement and lawn and garden products.

The Home Depot reported the following balance sheet data (in millions):

	Feb. 1, 2009	Feb. 3, 2008
Total assets	$41,164	$44,324
Total stockholders' equity	17,777	17,714

a. Determine the total liabilities as of February 1, 2009, and February 3, 2008.

b. Determine the ratio of liabilities to stockholders' equity for 2009 and 2008. Round to two decimal places.

c. What conclusions regarding the margin of protection to the creditors can you draw from (b)?

OBJ. 6

EX 1-27 Ratio of liabilities to stockholders' equity

Lowe's, a major competitor of The Home Depot in the home improvement business, operates over 1,600 stores. For the years ending January 30, 2009, and February 1, 2008, Lowe's reported the following balance sheet data (in millions):

	Jan. 30, 2009	Feb. 1, 2008
Total assets	$32,686	$30,869
Total liabilities	14,631	14,771

a. Determine the total stockholders' equity as of January 30, 2009, and February 1, 2008.

b. Determine the ratio of liabilities to stockholders' equity for 2009 and 2008. Round to two decimal places.

c. What conclusions regarding the margin of protection to the creditors can you draw from (b)?

d. Using the balance sheet data for The Home Depot in Exercise 1-26, how does the ratio of liabilities to stockholders' equity of Lowe's compare to that of The Home Depot?

Problems Series A

OBJ. 4

✔ Cash bal. at end of September: $37,700

PR 1-1A Transactions

On September 1 of the current year, Maria Edsall established a business to manage rental property. She completed the following transactions during September:

a. Opened a business bank account with a deposit of $40,000 from personal funds.

b. Purchased supplies (pens, file folders, and copy paper) on account, $2,200.

c. Received cash from fees earned for managing rental property, $6,000.

d. Paid rent on office and equipment for the month, $2,700.

e. Paid creditors on account, $1,000.

f. Billed customers for fees earned for managing rental property, $5,000.

g. Paid automobile expenses (including rental charges) for month, $600, and miscellaneous expenses, $300.

h. Paid office salaries, $1,900.

i. Determined that the cost of supplies on hand was $1,300; therefore, the cost of supplies used was $900.

j. Withdrew cash for personal use, $1,800.

Instructions

1. Indicate the effect of each transaction and the balances after each transaction, using the following tabular headings:

Assets			= Liabilities +	Owner's Equity							
Cash +	Accounts Receivable +	Supplies =	Accounts Payable +	Maria Edsall, Capital −	Maria Edsall, Drawing	+ Fees Earned	− Rent Expense	− Salaries Expense	− Supplies Expense	− Auto Expense	− Misc. Expense

2. Briefly explain why the owner's investment and revenues increased owner's equity, while withdrawals and expenses decreased owner's equity.
3. Determine the net income for September.
4. How much did September's transactions increase or decrease Maria Edsall's capital?

OBJ. 5

✔ 1. Net income: $40,000

PR 1-2A Financial statements

Following are the amounts of the assets and liabilities of New World Travel Agency at December 31, 2012, the end of the current year, and its revenue and expenses for the year. The capital of Kris Taber, owner, was $120,000 on January 1, 2012, the beginning of the current year. During the current year, Kris withdrew $10,000.

Accounts payable	$ 25,000	Rent expense	$45,000
Accounts receivable	60,000	Supplies	5,000
Cash	110,000	Supplies expense	3,000
Fees earned	200,000	Utilities expense	18,000
Miscellaneous expense	4,000	Wages expense	90,000

Instructions

1. Prepare an income statement for the current year ended December 31, 2012.
2. Prepare a statement of owner's equity for the current year ended December 31, 2012.

(Continued)

3. Prepare a balance sheet as of December 31, 2012.
4. What item appears on both the statement of owner's equity and the balance sheet?

OBJ. 5

✓ 1. Net income: $26,400

PR 1-3A Financial statements

Heidi Fritz established Freedom Financial Services on March 1, 2012. Freedom Financial Services offers financial planning advice to its clients. The effect of each transaction and the balances after each transaction for March are shown below.

	Assets			= Liabilities +	Owner's Equity							
	Cash	+ Accounts Receivable	+ Supplies =	Accounts Payable	+ Heidi Fritz, Capital	– Heidi Fritz, Drawing +	Fees Earned	– Salaries Expense	– Rent Expense	– Auto Expense	– Supplies Expense	– Misco. Expense
a.	+45,000				+45,000							
b.			+6,540	+6,540								
Bal.	45,000		6,540	6,540	45,000							
c.	–1,800			–1,800								
Bal.	43,200		6,540	4,740	45,000							
d.	+84,000						+84,000					
Bal.	127,200		6,540	4,740	45,000		84,000					
e.	–22,500								–22,500			
Bal.	104,700		6,540	4,740	45,000		84,000		–22,500			
f.	–17,100									–13,500		–3,600
Bal.	87,600		6,540	4,740	45,000		84,000		–22,500	–13,500		–3,600
g.	–48,000							–48,000				
Bal.	39,600		6,540	4,740	45,000		84,000	–48,000	–22,500	–13,500		–3,600
h.			–4,500								–4,500	
Bal.	39,600		2,040	4,740	45,000		84,000	–48,000	–22,500	–13,500	–4,500	–3,600
i.		+34,500					+34,500					
Bal.	39,600	34,500	2,040	4,740	45,000		118,500	–48,000	–22,500	–13,500	–4,500	–3,600
j.	–15,000					–15,000						
Bal.	24,600	34,500	2,040	4,740	45,000	–15,000	118,500	–48,000	–22,500	–13,500	–4,500	–3,600

Instructions

1. Prepare an income statement for the month ended March 31, 2012.
2. Prepare a statement of owner's equity for the month ended March 31, 2012.
3. Prepare a balance sheet as of March 31, 2012.
4. (Optional). Prepare a statement of cash flows for the month ending March 31, 2012.

OBJ. 4, 5

✓ 2. Net income: $12,150

PR 1-4A Transactions; financial statements

On January 1, 2012, Carlton Myers established Vista Realty. Carlton completed the following transactions during the month of January:

a. Opened a business bank account with a deposit of $25,000 from personal funds.
b. Purchased supplies (pens, file folders, paper, etc.) on account, $2,500.
c. Paid creditor on account, $1,600.
d. Earned sales commissions, receiving cash, $25,500.
e. Paid rent on office and equipment for the month, $5,000.
f. Withdrew cash for personal use, $8,000.
g. Paid automobile expenses (including rental charge) for month, $2,500, and miscellaneous expenses, $1,200.
h. Paid office salaries, $3,000.
i. Determined that the cost of supplies on hand was $850; therefore, the cost of supplies used was $1,650.

Instructions

1. Indicate the effect of each transaction and the balances after each transaction, using the following tabular headings:

Assets	= Liabilities +	Owner's Equity							
Cash + Supplies =	Accounts Payable +	Carlton Myers Capital −	Carlton Myers, Drawing +	Sales Commissions −	Rent Expense −	Office Salaries Expense −	Auto Expense −	Supplies Expense −	Misc. Expense

2. Prepare an income statement for January, a statement of owner's equity for January, and a balance sheet as of January 31.

OBJ. 4, 5

✔ 3. Net income: $14,900

PR 1-5A Transactions; financial statements

Kean Dry Cleaners is owned and operated by Wally Lowman. A building and equipment are currently being rented, pending expansion to new facilities. The actual work of dry cleaning is done by another company at wholesale rates. The assets and the liabilities of the business on March 1, 2012, are as follows: Cash, $15,000; Accounts Receivable, $31,000; Supplies, $3,000; Land, $36,000; Accounts Payable, $13,000. Business transactions during March are summarized as follows:

a. Wally Lowman invested additional cash in the business with a deposit of $28,000 in the business bank account.
b. Paid $14,000 for the purchase of land as a future building site.
c. Received cash from cash customers for dry cleaning revenue, $17,000.
d. Paid rent for the month, $5,000.
e. Purchased supplies on account, $2,500.
f. Paid creditors on account, $12,800.
g. Charged customers for dry cleaning revenue on account, $34,000.
h. Received monthly invoice for dry cleaning expense for March (to be paid on April 10), $13,500.
i. Paid the following: wages expense, $7,500; truck expense, $2,500; utilities expense, $1,300; miscellaneous expense, $2,700.
j. Received cash from customers on account, $28,000.
k. Determined that the cost of supplies on hand was $1,900; therefore, the cost of supplies used during the month was $3,600.
l. Withdrew $8,000 cash for personal use.

Instructions

1. Determine the amount of Wally Lowman's capital as of March 1 of the current year.
2. State the assets, liabilities, and owner's equity as of March 1 in equation form similar to that shown in this chapter. In tabular form below the equation, indicate increases and decreases resulting from each transaction and the new balances after each transaction.
3. Prepare an income statement for March, a statement of owner's equity for March, and a balance sheet as of March 31.
4. (Optional). Prepare a statement of cash flows for March.

OBJ. 5

✔ k. $300,000

PR 1-6A Missing amounts from financial statements

The financial statements at the end of Alpine Realty's first month of operations are as follows:

Alpine Realty
Income Statement
For the Month Ended June 30, 2012

Fees earned		$ (a)
Expenses:		
Wages expense	$120,000	
Rent expense	40,000	
Supplies expense	(b)	
Utilities expense	8,000	
Miscellaneous expense	10,000	
Total expenses		190,000
Net income		$110,000

Alpine Realty
Statement of Owner's Equity
For the Month Ended June 30, 2012

Aaron Gilbert, capital, June 1, 2012		$ (c)
Investment on June 1, 2012	$150,000	
Net income for June	(d)	
	$ (e)	
Less withdrawals	50,000	
Increase in owner's equity		(f)
Aaron Gilbert, capital, June 30, 2012		$ (g)

Alpine Realty
Balance Sheet
June 30, 2012

Assets		Liabilities	
Cash	$ 185,000	Accounts payable	$40,000
Supplies	5,000	**Owner's Equity**	
Land	60,000	Aaron Gilbert, capital	(i)
Total assets	$ (h)	Total liabilities and owner's equity	$ (j)

Alpine Realty
Statement of Cash Flows
For the Month Ended June 30, 2012

Cash flows from operating activities:		
Cash received from customers	$ (k)	
Deduct cash payments for expenses and payments to creditors	155,000	
Net cash flow from operating activities		$ (l)
Cash flows from investing activities:		
Cash payments for acquisition of land		(m)
Cash flows from financing activities:		
Cash received as owner's investment	$ (n)	
Deduct cash withdrawal by owner	(o)	
Net cash flow from financing activities		(p)
Net cash flow and June 30, 2012, cash balance		$ (q)

Instructions

By analyzing the interrelationships among the four financial statements, determine the proper amounts for (a) through (q).

Problems Series B

OBJ. 4

✔ Cash bal. at end of January: $73,500

PR 1-1B Transactions

Cody Macedo established an insurance agency on January 1 of the current year and completed the following transactions during January:

a. Opened a business bank account with a deposit of $75,000 from personal funds.
b. Purchased supplies on account, $3,000.
c. Paid creditors on account, $1,000.
d. Received cash from fees earned on insurance commissions, $11,800.
e. Paid rent on office and equipment for the month, $4,000.
f. Paid automobile expenses for month, $600, and miscellaneous expenses, $200.
g. Paid office salaries, $2,500.
h. Determined that the cost of supplies on hand was $1,900; therefore, the cost of supplies used was $1,100.
i. Billed insurance companies for sales commissions earned, $12,500.
j. Withdrew cash for personal use, $5,000.

Instructions

1. Indicate the effect of each transaction and the balances after each transaction, using the following tabular headings:

Assets			= Liabilities +	Owner's Equity							
Cash	+ Accounts Receivable	+ Supplies	= Accounts Payable	+ Cody Macedo, Capital	− Cody Macedo, Drawing	+ Fees Earned	− Rent Expense	− Salaries Expense	− Supplies Expense	− Auto Expense	− Misc. Expense

2. Briefly explain why the owner's investment and revenues increased owner's equity, while withdrawals and expenses decreased owner's equity.
3. Determine the net income for January.
4. How much did January's transactions increase or decrease Cody Macedo's capital?

OBJ. 5

✔ 1. Net income: $80,000

PR 1-2B Financial statements

The amounts of the assets and liabilities of St. Simon Travel Service at June 30, 2012, the end of the current year, and its revenue and expenses for the year are listed below. The capital of Gwen Perez, owner, was $150,000 at July 1, 2011, the beginning of the current year, and the owner withdrew $30,000 during the current year.

Accounts payable	$ 25,000	Supplies	$ 12,000
Accounts receivable	90,000	Supplies expense	10,000
Cash	123,000	Taxes expense	8,000
Fees earned	500,000	Utilities expense	36,000
Miscellaneous expense	11,000	Wages expense	280,000
Rent expense	75,000		

Instructions

1. Prepare an income statement for the current year ended June 30, 2012.
2. Prepare a statement of owner's equity for the current year ended June 30, 2012.
3. Prepare a balance sheet as of June 30, 2012.
4. What item appears on both the income statement and statement of owner's equity?

OBJ. 5

✔ 1. Net income: $91,900

PR 1-3B Financial statements

Rory Kalur established Computers 4 Less on February 1, 2012. The effect of each transaction and the balances after each transaction for February are shown below.

	Assets			= Liabilities +	Owner's Equity							
	Cash	+ Accounts Receivable	+ Supplies	= Accounts Payable	+ Rory Kalur, Capital	− Rory Kalur, Drawing	+ Fees Earned	− Salaries Expense	− Rent Expense	− Auto Expense	− Supplies Expense	− Misc. Expense
a.	+120,000				+120,000							
b.			+10,400	+10,400								
Bal.	120,000		10,400	10,400	120,000							
c.	+118,000						+118,000					
Bal.	238,000		10,400	10,400	120,000		118,000					
d.	−32,000								−32,000			
Bal.	206,000		10,400	10,400	120,000		118,000		−32,000			
e.	−5,000			−5,000								
Bal.	201,000		10,400	5,400	120,000		118,000		−32,000			
f.		+83,000					+83,000					
Bal.	201,000	83,000	10,400	5,400	120,000		201,000		−32,000			
g.	−23,000									−15,500		−7,500
Bal.	178,000	83,000	10,400	5,400	120,000		201,000		−32,000	−15,500		−7,500
h.	−48,000							−48,000				
Bal.	130,000	83,000	10,400	5,400	120,000		201,000	−48,000	−32,000	−15,500		−7,500
i.			−6,100								−6,100	
Bal.	130,000	83,000	4,300	5,400	120,000		201,000	−48,000	−32,000	−15,500	−6,100	−7,500
j.	−30,000					−30,000						
Bal.	100,000	83,000	4,300	5,400	120,000	−30,000	201,000	−48,000	−32,000	−15,500	−6,100	−7,500

Instructions

1. Prepare an income statement for the month ended February 29, 2012.
2. Prepare a statement of owner's equity for the month ended February 29, 2012.
3. Prepare a balance sheet as of February 29, 2012.
4. (Optional). Prepare a statement of cash flows for the month ending February 29, 2012.

OBJ. 4, 5

✓ 2. Net income: $9,300

PR 1-4B Transactions; financial statements

On June 1, 2012, Lindsey Brown established Equity Realty. Lindsey completed the following transactions during the month of June:

a. Opened a business bank account with a deposit of $15,000 from personal funds.

b. Paid rent on office and equipment for the month, $4,000.

c. Paid automobile expenses (including rental charge) for month, $1,200, and miscellaneous expenses, $800.

d. Purchased supplies (pens, file folders, and copy paper) on account, $1,000.

e. Earned sales commissions, receiving cash, $18,500.

f. Paid creditor on account, $600.

g. Paid office salaries, $2,500.

h. Withdrew cash for personal use, $5,000.

i. Determined that the cost of supplies on hand was $300; therefore, the cost of supplies used was $700.

Instructions

1. Indicate the effect of each transaction and the balances after each transaction, using the following tabular headings:

Assets	=	Liabilities +		Owner's Equity														
Cash + Supplies	=	Accounts Payable	+	Lindsey Brown, Capital	−	Lindsey Brown, Drawing	+	Sales Commissions	−	Rent Expense	−	Office Salaries Expense	−	Auto Expense	−	Supplies Expense	−	Misc. Expense

2. Prepare an income statement for June, a statement of owner's equity for June, and a balance sheet as of June 30.

OBJ. 4, 5

✓ 3. Net income: $3,700

PR 1-5B Transactions; financial statements

Anny's Dry Cleaners is owned and operated by Anny Brum. A building and equipment are currently being rented, pending expansion to new facilities. The actual work of dry cleaning is done by another company at wholesale rates. The assets and the liabilities of the business on June 1, 2012, are as follows: Cash, $25,000; Accounts Receivable, $30,000; Supplies, $5,000; Land, $50,000; Accounts Payable, $18,000. Business transactions during June are summarized as follows:

a. Anny Brum invested additional cash in the business with a deposit of $15,000 in the business bank account.

b. Purchased land for use as a parking lot, paying cash of $20,000.

c. Paid rent for the month, $3,000.

d. Charged customers for dry cleaning revenue on account, $22,000.

e. Paid creditors on account, $13,000.

f. Purchased supplies on account, $1,000.

g. Received cash from cash customers for dry cleaning revenue, $28,000.

h. Received cash from customers on account, $27,000.

i. Received monthly invoice for dry cleaning expense for June (to be paid on July 10), $21,500.

j. Paid the following: wages expense, $14,000; truck expense, $2,100; utilities expense, $1,800; miscellaneous expense, $1,300.

k. Determined that the cost of supplies on hand was $3,400; therefore, the cost of supplies used during the month was $2,600.

l. Withdrew $1,000 for personal use.

Instructions

1. Determine the amount of Anny Brum's capital as of June 1.
2. State the assets, liabilities, and owner's equity as of June 1 in equation form similar to that shown in this chapter. In tabular form below the equation, indicate increases and decreases resulting from each transaction and the new balances after each transaction.

3. Prepare an income statement for June, a statement of owner's equity for June, and a balance sheet as of June 30.
4. (Optional) Prepare a statement of cash flows for June.

OBJ. 5

✔ i. $130,000

PR 1-6B Missing amounts from financial statements

The financial statements at the end of Cyber Realty's first month of operations are shown below.

Cyber Realty
Income Statement
For the Month Ended October 31, 2012

Fees earned		$250,000
Expenses:		
Wages expense	$ (a)	
Rent expense	30,000	
Supplies expense	11,000	
Utilities expense	9,000	
Miscellaneous expense	3,000	
Total expenses		180,000
Net income		$ (b)

Cyber Realty
Statement of Owner's Equity
For the Month Ended October 31, 2012

Kendra Garcia, capital, October 1, 2012		$ (c)
Investment on October 1, 2012	$ (d)	
Net income for October	(e)	
	$ (f)	
Less withdrawals	(g)	
Increase in owner's equity		(h)
Kendra Garcia, capital, October 31, 2012		$ (i)

Cyber Realty
Balance Sheet
October 31, 2012

Assets		**Liabilities**	
Cash	$77,000	Accounts payable	$ 30,000
Supplies	8,000	**Owner's Equity**	
Land	(j)	Kendra Garcia, capital	(l)
Total assets	$ (k)	Total liabilities and owner's equity	$ (m)

Cyber Realty
Statement of Cash Flows
For the Month Ended October 31, 2012

Cash flows from operating activities:		
Cash received from customers	$ (n)	
Deduct cash payments for expenses and payments to creditors	158,000	
Net cash flow from operating activities		$ (0)
Cash flows from investing activities:		
Cash payments for acquisition of land		(75,000)
Cash flows from financing activities:		
Cash received as owner's investment	$100,000	
Deduct cash withdrawal by owner	40,000	
Net cash flow from financing activities		(p)
Net cash flow and October 31, 2012, cash balance		$ (q)

Instructions

By analyzing the interrelationships among the four financial statements, determine the proper amounts for (a) through (q).

Continuing Problem

GL GENERAL LEDGER

✓ **2. Net income: $1,980**

Pat Sharpe enjoys listening to all types of music and owns countless CDs. Over the years, Pat has gained a local reputation for knowledge of music from classical to rap and the ability to put together sets of recordings that appeal to all ages.

During the last several months, Pat served as a guest disc jockey on a local radio station. In addition, Pat has entertained at several friends' parties as the host deejay.

On June 1, 2012, Pat established a proprietorship known as PS Music. Using an extensive collection of music MP3 files, Pat will serve as a disc jockey on a fee basis for weddings, college parties, and other events. During June, Pat entered into the following transactions:

June 1. Deposited $5,000 in a checking account in the name of PS Music.
2. Received $3,600 from a local radio station for serving as the guest disc jockey for June.
2. Agreed to share office space with a local real estate agency, Downtown Realty. PS Music will pay one-fourth of the rent. In addition, PS Music agreed to pay a portion of the salary of the receptionist and to pay one-fourth of the utilities. Paid $750 for the rent of the office.
4. Purchased supplies from City Office Supply Co. for $350. Agreed to pay $100 within 10 days and the remainder by July 5, 2012.
6. Paid $450 to a local radio station to advertise the services of PS Music twice daily for two weeks.
8. Paid $700 to a local electronics store for renting digital recording equipment.
12. Paid $350 (music expense) to Cool Music for the use of its current music demos to make various music sets.
13. Paid City Office Supply Co. $100 on account.
16. Received $500 from a dentist for providing two music sets for the dentist to play for her patients.
22. Served as disc jockey for a wedding party. The father of the bride agreed to pay $1,250 the 1st of July.
25. Received $400 for serving as the disc jockey for a cancer charity ball hosted by the local hospital.
29. Paid $240 (music expense) to Galaxy Music for the use of its library of music demos.
30. Received $900 for serving as PS disc jockey for a local club's monthly dance.
30. Paid Downtown Realty $400 for PS Music's share of the receptionist's salary for June.
30. Paid Downtown Realty $300 for PS Music's share of the utilities for June.
30. Determined that the cost of supplies on hand is $170. Therefore, the cost of supplies used during the month was $180.
30. Paid for miscellaneous expenses, $300.
30. Paid $1,000 royalties (music expense) to National Music Clearing for use of various artists' music during the month.
30. Withdrew $500 of cash from PS Music for personal use.

Instructions

1. Indicate the effect of each transaction and the balances after each transaction, using the following tabular headings:

Assets			**= Liabilities +**	**Owner's Equity**										
Cash +	Accts. Rec. +	Supplies =	Accounts Payable +	Pat Sharpe, Capital –	Pat Sharpe, Drawing +	Fees Earned –	Music Exp. –	Office Rent Exp. –	Equipment Rent Exp. –	Advertising Exp. –	Wages Exp. –	Utilities Exp. –	Supplies Exp. –	Misc. Exp.

2. Prepare an income statement for PS Music for the month ended June 30, 2012.

3. Prepare a statement of owner's equity for PS Music for the month ended June 30, 2012.
4. Prepare a balance sheet for PS Music as of June 30, 2012.

Cases & Projects

You can access the Cases & Projects online at **www.cengage.com/accounting/reeve**

P Photo/Paul Sakuma

CHAPTER 2

Analyzing Transactions

Apple, Inc.™

Everyday it seems like we get an incredible amount of incoming e-mail messages; you get them from your friends, relatives, subscribed e-mail lists, and even spammers! But how do you organize all of these messages? You might create folders to sort messages by sender, topic, or project. Perhaps you use keyword search utilities. You might even use filters/rules to automatically delete spam or send messages from your best friend to a special folder. In any case, you are organizing information so that it is simple to retrieve and allows you to understand, respond, or refer to the messages.

In the same way that you organize your e-mail, companies develop an organized method for processing, recording, and summarizing financial transactions. For example, **Apple, Inc.**, has a huge volume of financial transactions, resulting from sales of its innovative computers, digital media (iTunes), iPods, iPhones, and iPads. When Apple sells an iPad, a customer has the option of paying with credit card, a debit or check card, an Apple gift card, a financing arrangement, or cash. In order to analyze only the information related to Apple's cash transactions, the company must record or summarize all these similar sales using a single category or "cash" account. Similarly, Apple will record credit card payments for iPads and sales from financing arrangements in different accounts (records).

While Chapter 1 uses the accounting equation (Assets = Liabilities + Owner's Equity) to analyze and record financial transactions, this chapter presents more practical and efficient recording methods that most companies use. In addition, this chapter discusses possible accounting errors that may occur, along with methods to detect and correct them.

Learning Objectives

After studying this chapter, you should be able to:	Example Exercises	Page
OBJ. 1 Describe the characteristics of an account and a chart of accounts.		
Using Accounts to Record Transactions		
Chart of Accounts		
OBJ. 2 Describe and illustrate journalizing transactions using the double-entry accounting system.		
Double-Entry Accounting System		
Balance Sheet Accounts		
Income Statement Accounts		
Owner Withdrawals		
Normal Balances	EE 2-1	54
Journalizing	EE 2-2	59
OBJ. 3 Describe and illustrate the journalizing and posting of transactions to accounts.		
Posting Journal Entries to Accounts	EE 2-3	64
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OBJ. 4 Prepare an unadjusted trial balance and explain how it can be used to discover errors.		
Trial Balance		
Errors Affecting the Trial Balance	EE 2-6	72
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OBJ. 5 Describe and illustrate the use of horizontal analysis in evaluating a company's performance and financial condition.		
Financial Analysis and Interpretation: Horizontal Analysis	EE 2-8	75

At a Glance 2 Page 75

Using Accounts to Record Transactions

OBJ. 1 Describe the characteristics of an account and a chart of accounts.

In Chapter 1, the November transactions for NetSolutions were recorded using the accounting equation format shown in Exhibit 1. However, this format is not efficient or practical for companies that have to record thousands or millions of transactions daily. As a result, accounting systems are designed to show the increases and decreases in each accounting equation element as a separate record. This record is called an **account**.

To illustrate, the Cash column of Exhibit 1 records the increases and decreases in cash. Likewise, the other columns in Exhibit 1 record the increases and decreases in the other accounting equation elements. Each of these columns can be organized into a separate account.

An account, in its simplest form, has three parts.

1. A title, which is the name of the accounting equation element recorded in the account.
2. A space for recording increases in the amount of the element.
3. A space for recording decreases in the amount of the element.

The account form presented below is called a **T account** because it resembles the letter T. The left side of the account is called the *debit* side, and the right side is called the *credit* side.[1]

Title	
Left side *debit*	Right side *credit*

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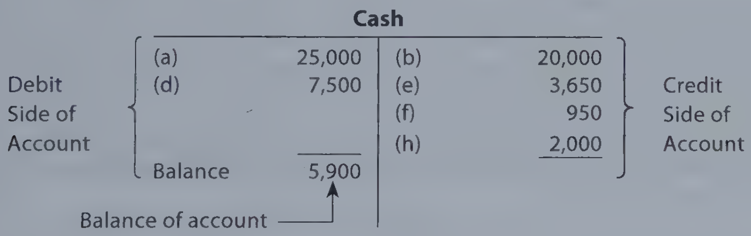
[1] The terms *debit* and *credit* are derived from the Latin *debere* and *credere*.

EXHIBIT 1 **NetSolutions November Transactions**

	Assets			**= Liabilities +**	**Owner's Equity**							
	Cash +	Supp. +	Land =	Accounts Payable +	Chris Clark, Capital −	Chris Clark, Drawing +	Fees Earned −	Wages Exp. −	Rent Exp. −	Supplies Exp. −	Utilities Exp. −	Misc. Exp.
a.	+25,000				+25,000							
b.	−20,000		+20,000									
Bal.	5,000		20,000		25,000							
c.		+1,350		+1,350								
Bal.	5,000	1,350	20,000	1,350	25,000							
d.	+7,500						+7,500					
Bal.	12,500	1,350	20,000	1,350	25,000		7,500					
e.	−3,650							−2,125	−800		−450	−275
Bal.	8,850	1,350	20,000	1,350	25,000		7,500	−2,125	−800		−450	−275
f.	−950			−950								
Bal.	7,900	1,350	20,000	400	25,000		7,500	−2,125	−800		−450	−275
g.		−800								−800		
Bal.	7,900	550	20,000	400	25,000		7,500	−2,125	−800	−800	−450	−275
h.	−2,000					−2,000						
Bal.	5,900	550	20,000	400	25,000	−2,000	7,500	−2,125	−800	−800	−450	−275

The amounts shown in the Cash column of Exhibit 1 would be recorded in a cash account as follows:



Cash

(a)	25,000	(b)	20,000
(d)	7,500	(e)	3,650
		(f)	950
		(h)	2,000
Balance	5,900		

Note:

Amounts entered on the left side of an account are debits, and amounts entered on the right side of an account are credits.

Recording transactions in accounts must follow certain rules. For example, increases in assets are recorded on the **debit** (left side) of an account. Likewise, decreases in assets are recorded on the **credit** (right side) of an account. The excess of the debits of an asset account over its credits is the **balance of the account**.

To illustrate, the receipt (increase in Cash) of $25,000 in transaction (a) is entered on the debit (left) side of the cash account shown above. The letter or date of the transaction is also entered into the account. This is done so if any questions later arise related to the entry, the entry can be traced back to the underlying transaction data. In contrast, the payment (decrease in Cash) of $20,000 to purchase land in transaction (b) is entered on the credit (right) side of the account.

The balance of the cash account of $5,900 is the excess of the debits over the credits as shown below.

Debits ($25,000 + $7,500)	$32,500
Less credits ($20,000 + $3,650 + $950 + $2,000)	26,600
Balance of Cash as of November 30, 2011	$ 5,900

The balance of the cash account is inserted in the account, in the Debit column. In this way, the balance is identified as a debit balance.[2] This balance represents NetSolutions' cash on hand as of November 30, 2011. This balance of $5,900 is reported on the November 30, 2011, balance sheet for NetSolutions as shown in Exhibit 6 of Chapter 1.

---

[2] The totals of the debit and credit columns may be shown separately in an account. When this is done, these amounts should be identified in some way so that they are not mistaken for entries or the ending balance of the account.

In an actual accounting system, a more formal account form replaces the T account. Later in this chapter, a four-column account is illustrated. The T account, however, is a simple way to illustrate the effects of transactions on accounts and financial statements. For this reason, T accounts are often used in business to explain transactions.

Each of the columns in Exhibit 1 can be converted into an account form in a similar manner as was done for the Cash column of Exhibit 1. However, as mentioned earlier, recording increases and decreases in accounts must follow certain rules. These rules are discussed after the chart of accounts is described.

Chart of Accounts

A group of accounts for a business entity is called a **ledger**. A list of the accounts in the ledger is called a **chart of accounts**. The accounts are normally listed in the order in which they appear in the financial statements. The balance sheet accounts are listed first, in the order of assets, liabilities, and owner's equity. The income statement accounts are then listed in the order of revenues and expenses.

Assets are resources owned by the business entity. These resources can be physical items, such as cash and supplies, or intangibles that have value. Examples of intangible assets include patent rights, copyrights, and trademarks. Assets also include accounts receivable, prepaid expenses (such as insurance), buildings, equipment, and land.

Liabilities are debts owed to outsiders (creditors). Liabilities are often identified on the balance sheet by titles that include *payable*. Examples of liabilities include accounts payable, notes payable, and wages payable. Cash received before services are delivered creates a liability to perform the services. These future service commitments are called *unearned revenues*. Examples of unearned revenues include magazine subscriptions received by a publisher and tuition received at the beginning of a term by a college.

Owner's equity is the owner's right to the assets of the business after all liabilities have been paid. For a proprietorship, the owner's equity is represented by the balance of the owner's **capital account**. A **drawing** account represents the amount of withdrawals made by the owner.

Revenues are increases in owner's equity as a result of selling services or products to customers. Examples of revenues include fees earned, fares earned, commissions revenue, and rent revenue.

Business Connection

THE HIJACKING RECEIVABLE

A company's chart of accounts should reflect the basic nature of its operations. Occasionally, however, transactions take place that give rise to unusual accounts. The following is a story of one such account.

Before strict airport security was implemented across the United States, several airlines experienced hijacking incidents. One such incident occurred when a Southern Airways DC-9 en route from Memphis to Miami was hijacked during a stopover in Birmingham, Alabama. The three hijackers boarded the plane in Birmingham armed with handguns and hand grenades. At gunpoint, the hijackers took the plane, the plane's crew, and the passengers to nine American cities, Toronto, and eventually to Havana, Cuba.

During the long flight, the hijackers demanded a ransom of $10 million. Southern Airways, however, was only able to come up with $2 million. Eventually, the pilot talked the hijackers into settling for the $2 million when the plane landed in Chattanooga for refueling.

Upon landing in Havana, the Cuban authorities arrested the hijackers and, after a brief delay, sent the plane, passengers, and crew back to the United States. The hijackers and $2 million stayed in Cuba.

How did Southern Airways account for and report the hijacking payment in its subsequent financial statements? As you might have analyzed, the initial entry credited Cash for $2 million. The debit was to an account entitled "Hijacking Payment." This account was reported as a type of receivable under "other assets" on Southern's balance sheet. The company maintained that it would be able to collect the cash from the Cuban government and that, therefore, a receivable existed. In fact, Southern Airways was repaid $2 million by the Cuban government, which was, at that time, attempting to improve relations with the United States.

Expenses result from using up assets or consuming services in the process of generating revenues. Examples of expenses include wages expense, rent expense, utilities expense, supplies expense, and miscellaneous expense.

A chart of accounts should meet the needs of a company's managers and other users of its financial statements. The accounts within the chart of accounts are numbered for use as references. A numbering system is normally used, so that new accounts can be added without affecting other account numbers.

Exhibit 2 is NetSolutions' chart of accounts that is used in this chapter. Additional accounts will be introduced in later chapters. In Exhibit 2, each account number has two digits. The first digit indicates the major account group of the ledger in which the account is located. Accounts beginning with 1 represent assets; 2, liabilities; 3, owner's equity; 4, revenue; and 5, expenses. The second digit indicates the location of the account within its group.

Procter & Gamble's account numbers have over 30 digits to reflect P&G's many different operations and regions.

EXHIBIT 2

Chart of Accounts for NetSolutions

Balance Sheet Accounts		Income Statement Accounts	
1. Assets		**4. Revenue**	
11	Cash	41	Fees Earned
12	Accounts Receivable	**5. Expenses**	
14	Supplies	51	Wages Expense
15	Prepaid Insurance	52	Rent Expense
17	Land	54	Utilities Expense
18	Office Equipment	55	Supplies Expense
2. Liabilities		59	Miscellaneous Expense
21	Accounts Payable		
23	Unearned Rent		
3. Owner's Equity			
31	Chris Clark, Capital		
32	Chris Clark, Drawing		

Each of the columns in Exhibit 1 has been assigned an account number in the chart of accounts shown in Exhibit 2. In addition, Accounts Receivable, Prepaid Insurance, Office Equipment, and Unearned Rent have been added. These accounts will be used in recording NetSolutions' December transactions.

Double-Entry Accounting System

OBJ 2 Describe and illustrate journalizing transactions using the double-entry accounting system.

All businesses use what is called the **double-entry accounting system**. This system is based on the accounting equation and requires:

1. Every business transaction to be recorded in at least two accounts.
2. The total debits recorded for each transaction to be equal to the total credits recorded.

The double-entry accounting system also has specific **rules of debit and credit** for recording transactions in the accounts.

Balance Sheet Accounts

The debit and credit rules for balance sheet accounts are as follows:

Balance Sheet Accounts

ASSETS Asset Accounts		=	LIABILITIES Liability Accounts		+	OWNER'S EQUITY Owner's Equity Accounts	
Debit for increases (+)	Credit for decreases (–)		Debit for decreases (–)	Credit for increases (+)		Debit for decreases (–)	Credit for increases (+)

Income Statement Accounts

The debit and credit rules for income statement accounts are based on their relationship with owner's equity. As shown on page 53, owner's equity accounts are increased by credits. Since revenues increase owner's equity, revenue accounts are increased by credits and decreased by debits. Since owner's equity accounts are decreased by debits, expense accounts are increased by debits and decreased by credits. Thus, the rules of debit and credit for revenue and expense accounts are as follows:

Income Statement Accounts

Revenue Accounts		Expense Accounts	
Debit for decreases (–)	Credit for increases (+)	Debit for increases (+)	Credit for decreases (–)

Owner Withdrawals

The debit and credit rules for recording owner withdrawals are based on the effect of owner withdrawals on owner's equity. Since owner's withdrawals decrease owner's equity, the owner's drawing account is increased by debits. Likewise, the owner's drawing account is decreased by credits. Thus, the rules of debit and credit for the owner's drawing account are as follows:

Drawing Account	
Debit for increases (+)	Credit for decreases (–)

Normal Balances

The sum of the increases in an account is usually equal to or greater than the sum of the decreases in the account. Thus, the **normal balance of an account** is either a debit or credit depending on whether increases in the account are recorded as debits or credits. For example, since asset accounts are increased with debits, asset accounts normally have debit balances. Likewise, liability accounts normally have credit balances.

The rules of debit and credit and the normal balances of the various types of accounts are summarized in Exhibit 3. Debits and credits are sometimes abbreviated as Dr. for debit and Cr. for credit.

When an account normally having a debit balance has a credit balance, or vice versa, an error may have occurred or an unusual situation may exist. For example, a credit balance in the office equipment account could result only from an error. This

Example Exercise 2-1 Rules of Debit and Credit and Normal Balances

OBJ. 2

State for each account whether it is likely to have (a) debit entries only, (b) credit entries only, or (c) both debit and credit entries. Also, indicate its normal balance.

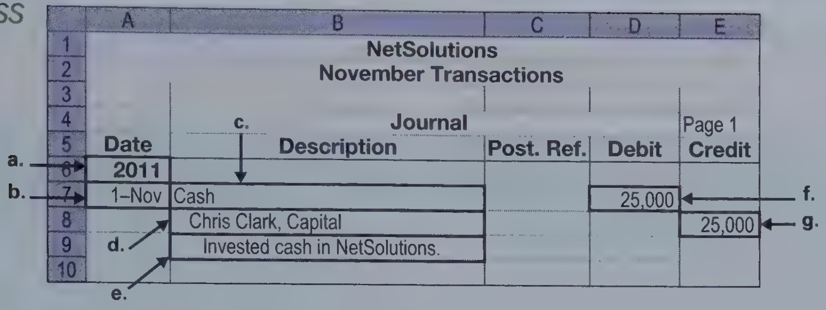
1. Amber Saunders, Drawing
2. Accounts Payable
3. Cash
4. Fees Earned
5. Supplies
6. Utilities Expense

Follow My Example 2-1

1. Debit entries only; normal debit balance
2. Debit and credit entries; normal credit balance
3. Debit and credit entries; normal debit balance
4. Credit entries only; normal credit balance
5. Debit and credit entries; normal debit balance
6. Debit entries only; normal debit balance

Practice Exercises: **PE 2-1A, PE 2-1B**

excel success Excel can be used to input a journal entry as follows:

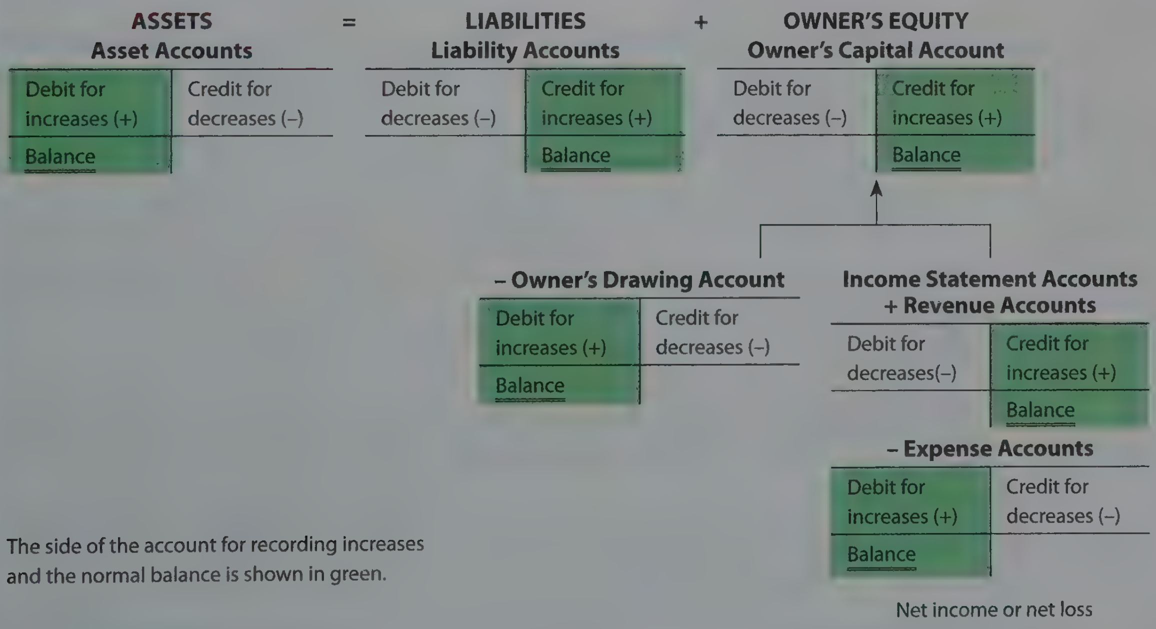


	A	B	C	D	E
1		NetSolutions			
2		November Transactions			
3					
4		Journal			Page 1
5	Date	Description	Post. Ref.	Debit	Credit
6	2011				
7	1-Nov	Cash		25,000	
8		Chris Clark, Capital			25,000
9		Invested cash in NetSolutions.			
10					

a. In cell A6, the journal year is entered (type 2011).
b. The month and day is then entered for each transaction. In cell A7, type "11-1".
c. The account to be **debited** is entered in cell B7 (type "Cash").
d. The account to be **credited** is entered and indented in cell B8 (type "Chris Clark, Capital"). Use the Excel indent format button to make indention.
e. A description of the transaction is entered and indented, twice, in cell B9 (type "Invested cash in NetSolutions").
f. The amount of the **debit** is entered in cell D7 (type 25000). Use the Excel comma format to insert commas.
g. The amount of the **credit** is entered in cell E8 (type 25000).

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

EXHIBIT 3 **Rules of Debit and Credit, Normal Balances of Accounts**



The side of the account for recording increases and the normal balance is shown in green.

is because a business cannot have more decreases than increases of office equipment. On the other hand, a debit balance in an accounts payable account could result from an overpayment.

Journalizing

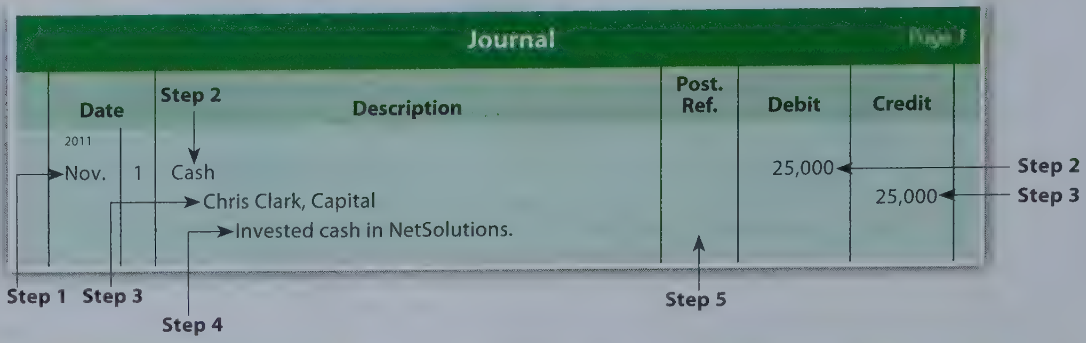
Using the rules of debit and credit, transactions are initially entered in a record called a **journal**. In this way, the journal serves as a record of when transactions occurred and were recorded. To illustrate, the November transactions of NetSolutions from Chapter 1 are used.

Transaction A *Nov. 1 Chris Clark deposited $25,000 in a bank account in the name of NetSolutions.*

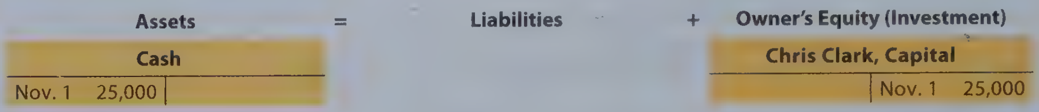
Analysis

This transaction increases an asset account and increases an owner's equity account. It is recorded in the journal as an increase (debit) to Cash and an increase (credit) to Chris Clark, Capital.

Journal Entry



Accounting Equation Impact



A journal can be thought of as being similar to an individual's diary of significant day-to-day life events.

The transaction is recorded in the journal using the following steps:

Step 1. The date of the transaction is entered in the Date column.
Step 2. The title of the account to be debited is recorded at the left-hand margin under the Description column, and the amount to be debited is entered in the Debit column.
Step 3. The title of the account to be credited is listed below and to the right of the debited account title, and the amount to be credited is entered in the Credit column.
Step 4. A brief description may be entered below the credited account.
Step 5. The Post. Ref. (Posting Reference) column is left blank when the journal entry is initially recorded. This column is used later in this chapter when the journal entry amounts are transferred to the accounts in the ledger.

The process of recording a transaction in the journal is called **journalizing**. The entry in the journal is called a **journal entry**.

The following is a useful method for analyzing and journalizing transactions:

1. Carefully read the description of the transaction to determine whether an asset, a liability, an owner's equity, a revenue, an expense, or a drawing account is affected.
2. For each account affected by the transaction, determine whether the account increases or decreases.
3. Determine whether each increase or decrease should be recorded as a debit or a credit, following the rules of debit and credit shown in Exhibit 3.
4. Record the transaction using a journal entry.

The following table summarizes terminology that is often used in describing a transaction along with the related accounts that would be debited and credited.

	Journal Entry Account	
Common transaction terminology	**Debit**	**Credit**
Received cash for services provided	Cash	Fees Earned
Services provided on account	Accounts Receivable	Fees Earned
Received cash on account	Cash	Accounts Receivable
Purchased on account	Asset Account	Accounts Payable
Paid on account	Accounts Payable	Cash
Paid cash	Asset or Expense Account	Cash
Owner investments	Cash and/or other assets	(Owner's Name), Capital
Owner withdrawals	(Owner's Name), Drawing	Cash

The remaining transactions of NetSolutions for November are analyzed and journalized next.

Transaction B

Nov. 5 NetSolutions paid $20,000 for the purchase of land as a future building site.

Analysis

This transaction increases one asset account and decreases another. It is recorded in the journal as a $20,000 increase (debit) to Land and a $20,000 decrease (credit) to Cash.

Journal Entry

Nov.	5	Land		20,000		
		Cash			20,000	
		Purchased land for building site.				

Accounting Equation Impact

Assets = Liabilities + Owner's Equity

Land	
Nov. 5 20,000	

Cash	
	Nov. 5 20,000

Transaction C

Nov. 10 NetSolutions purchased supplies on account for $1,350.

Analysis

This transaction increases an asset account and increases a liability account. It is recorded in the journal as a $1,350 increase (debit) to Supplies and a $1,350 increase (credit) to Accounts Payable.

Journal Entry

Nov.	10	Supplies		1,350		
		Accounts Payable			1,350	
		Purchased supplies on account.				

Accounting Equation Impact

Assets = Liabilities + Owner's Equity

Supplies	
Nov. 10 1,350	

Accounts Payable	
	Nov. 10 1,350

Transaction D

Nov. 18 NetSolutions received cash of $7,500 from customers for services provided.

Analysis

This transaction increases an asset account and increases a revenue account. It is recorded in the journal as a $7,500 increase (debit) to Cash and a $7,500 increase (credit) to Fees Earned.

Journal Entry

Nov.	18	Cash		7,500		
		Fees Earned			7,500	
		Received fees from customers.				

Accounting Equation Impact

Assets = Liabilities + Owner's Equity (Revenue)

Cash	
Nov. 18 7,500	

Fees Earned	
	Nov. 18 7,500

Transaction E

Nov. 30 NetSolutions incurred the following expenses: wages, $2,125; rent, $800; utilities, $450; and miscellaneous, $275.

Analysis

This transaction increases various expense accounts and decreases an asset (Cash) account. You should note that regardless of the number of accounts, *the sum of the debits is always equal to the sum of the credits in a journal entry*. It is

(continued)

recorded in the journal with increases (debits) to the expense accounts (Wages Expense, $2,125; Rent Expense, $800; Utilities Expense, $450; and Miscellaneous Expense, $275) and a decrease (credit) to Cash, $3,650.

Journal Entry

	Nov.	30	Wages Expense		2,125	
			Rent Expense		800	
			Utilities Expense		450	
			Miscellaneous Expense		275	
			Cash			3,650
			Paid expenses.			

Accounting Equation Impact

Assets = Liabilities + Owner's Equity (Expense)

Cash

	Nov. 30 3,650

Wages Expense

Nov. 30 2,125	

Rent Expense

Nov. 30 800	

Utilities Expense

Nov. 30 450	

Miscellaneous Expense

Nov. 30 275	

Transaction F *Nov. 30 NetSolutions paid creditors on account, $950.*

Analysis

This transaction decreases a liability account and decreases an asset account. It is recorded in the journal as a $950 decrease (debit) to Accounts Payable and a $950 decrease (credit) to Cash.

Journal Entry

	Nov.	30	Accounts Payable		950	
			Cash			950
			Paid creditors on account.			

Accounting Equation Impact

Assets = Liabilities + Owner's Equity

Cash

	Nov. 30 950

Accounts Payable

Nov. 30 950	

Transaction G *Nov. 30 Chris Clark determined that the cost of supplies on hand at November 30 was $550.*

Analysis

NetSolutions purchased $1,350 of supplies on November 10. Thus, $800 ($1,350 – $550) of supplies must have been used during November. This transaction is recorded in the journal as an $800 increase (debit) to Supplies Expense and an $800 decrease (credit) to Supplies.

Journal Entry

	Nov.	30	Supplies Expense		800	
			Supplies			800
			Supplies used during November.			

Accounting Equation Impact

Assets = Liabilities + Owner's Equity (Expense)

Supplies

	Nov. 30 800

Supplies Expense

Nov. 30 800	

Transaction H

Nov. 30 Chris Clark withdrew $2,000 from NetSolutions for personal use.

Analysis

This transaction decreases assets and owner's equity. This transaction is recorded in the journal as a $2,000 increase (debit) to Chris Clark, Drawing and a $2,000 decrease (credit) to Cash.

Journal Entry

Journal Page 2

Date		Description	Post. Ref.	Debit	Credit
2011					
Nov.	30	Chris Clark, Drawing		2,000	
		Cash			2,000
		Chris Clark withdrew cash for personal use.			

Accounting Equation Impact

Assets = Liabilities + Owner's Equity (Drawing)

Cash	
	Nov. 30 2,000

Chris Clark, Drawing	
Nov. 30 2,000	

Integrity, Objectivity, and Ethics in Business

WILL JOURNALIZING PREVENT FRAUD?

While journalizing transactions reduces the possibility of fraud, it by no means eliminates it. For example, embezzlement can be hidden within the double-entry bookkeeping system by creating fictitious suppliers to whom checks are issued.

Example Exercise 2-2 Journal Entry for Asset Purchase

OBJ. 2

Prepare a journal entry for the purchase of a truck on June 3 for $42,500, paying $8,500 cash and the remainder on account.

Follow My Example 2-2

June 3	Truck	42,500	
	Cash		8,500
	Accounts Payable		34,000

Practice Exercises: **PE 2-2A, PE 2-2B**

Posting Journal Entries to Accounts

OBJ. 3 Describe and illustrate the journalizing and posting of transactions to accounts.

As illustrated, a transaction is first recorded in a journal. Periodically, the journal entries are transferred to the accounts in the ledger. The process of transferring the debits and credits from the journal entries to the accounts is called **posting**.

The December transactions of NetSolutions are used to illustrate posting from the journal to the ledger. By using the December transactions, an additional review of analyzing and journalizing transactions is provided.

Transaction

Dec. 1 NetSolutions paid a premium of $2,400 for an insurance policy for liability, theft, and fire. The policy covers a one-year period.

Analysis

Advance payments of expenses, such as for insurance premiums, are called prepaid expenses. Prepaid expenses are assets. For NetSolutions, the asset purchased is insurance protection for 12 months. This transaction is recorded as a $2,400 increase (debit) to Prepaid Insurance and a $2,400 decrease (credit) to Cash.

Journal Entry

Dec.	1	Prepaid Insurance	15	2,400	
		Cash	11		2,400
		Paid premium on one-year policy.			

Accounting Equation Impact

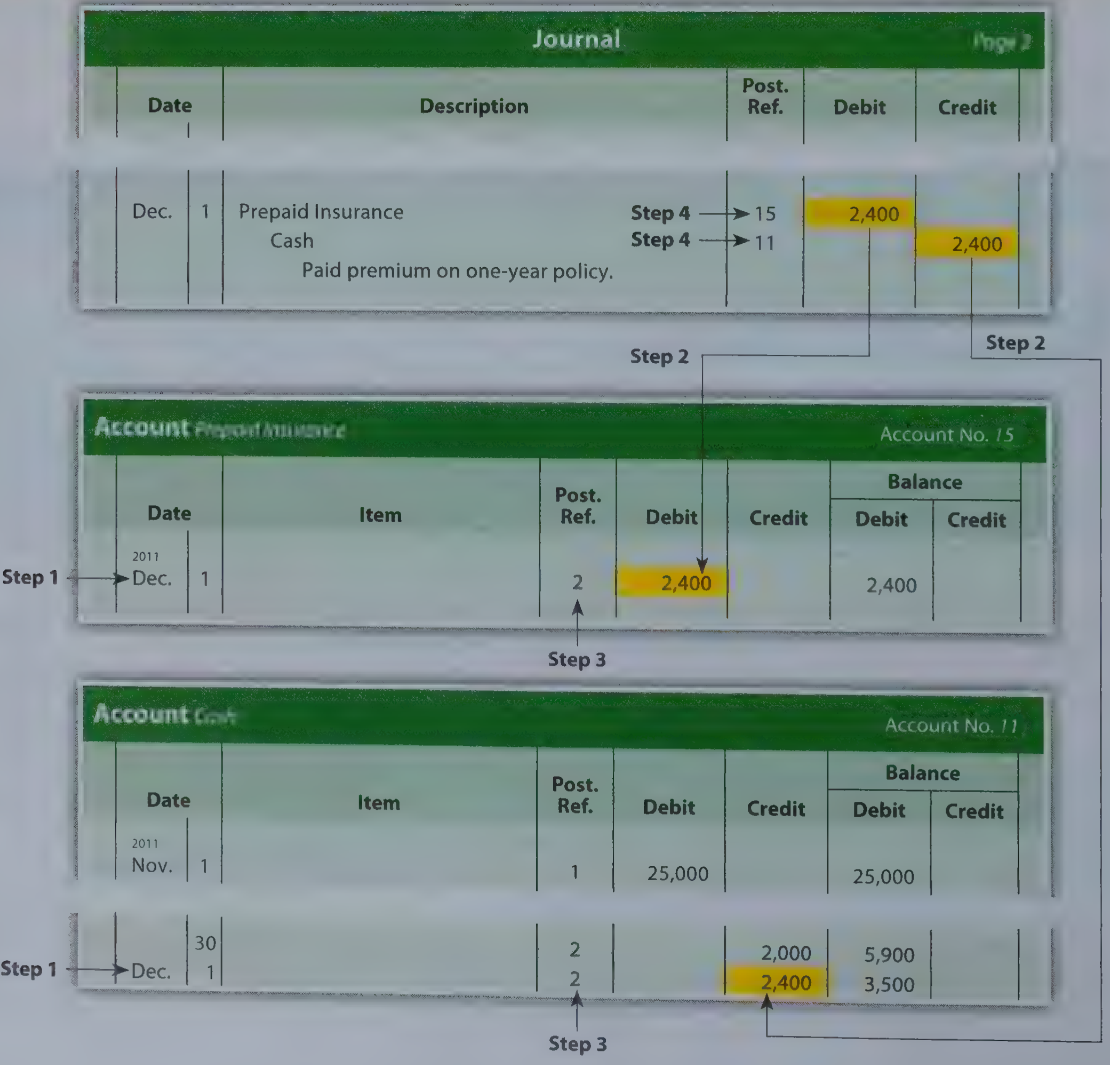
Assets = Liabilities + Owner's Equity

Cash 11	
	Dec. 1 2,400

Prepaid Insurance 15	
Dec. 1 2,400	

The posting of the preceding December 1 transaction is shown in Exhibit 4. Notice that the T account form is not used in Exhibit 4. In practice, the T account is usually replaced with a standard account form similar to that shown in Exhibit 4.

EXHIBIT 4 Diagram of the Recording and Posting of a Debit and a Credit



Journal — Page 2

Date		Description	Post. Ref.	Debit	Credit
Dec.	1	Prepaid Insurance	15	2,400	
		Cash	11		2,400
		Paid premium on one-year policy.			

Account Prepaid Insurance — Account No. 15

Date		Item	Post. Ref.	Debit	Credit	Balance	
						Debit	Credit
2011 Dec.	1		2	2,400		2,400	

Account Cash — Account No. 11

Date		Item	Post. Ref.	Debit	Credit	Balance	
						Debit	Credit
2011 Nov.	1		1	25,000		25,000	
	30		2		2,000	5,900	
Dec.	1		2		2,400	3,500	

The debits and credits for each journal entry are posted to the accounts in the order in which they occur in the journal. To illustrate, the debit portion of the December 1 journal entry is posted to the prepaid account in Exhibit 4 using the following four steps:

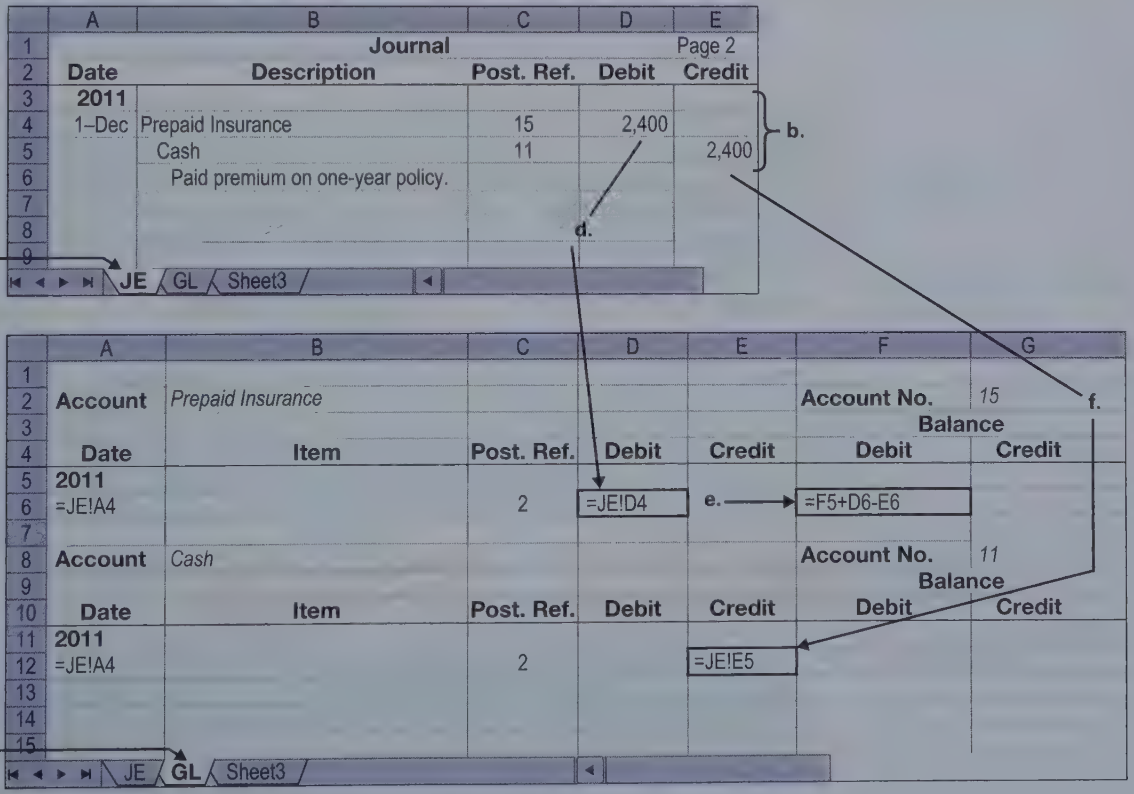
Step 1. The date (Dec. 1) of the journal entry is entered in the Date column of Prepaid Insurance.
Step 2. The amount (2,400) is entered into the Debit column of Prepaid Insurance.
Step 3. The journal page number (2) is entered in the Posting Reference (Post. Ref.) column of Prepaid Insurance.
Step 4. The account number (15) is entered in the Posting Reference (Post. Ref.) column in the journal.

As shown in Exhibit 4, the credit portion of the December 1 journal entry is posted to the cash account in a similar manner.

The remaining December transactions for NetSolutions are analyzed and journalized in the following paragraphs. These transactions are posted to the ledger in Exhibit 5 on pages 68–69. To simplify, some of the December transactions are stated in summary form. For example, cash received for services is normally recorded on a daily basis. However, only summary totals are recorded at the middle and end of the month for NetSolutions.

excel success

The general ledger can be created in the same workbook on a separate worksheet. The general ledger (*GL*) worksheet references cells from the journal worksheet (*JE*) in order to post the journal entries into the ledger accounts.



	A	B	C	D	E
1		Journal			Page 2
2	**Date**	**Description**	**Post. Ref.**	**Debit**	**Credit**
3	**2011**				
4	1-Dec	Prepaid Insurance	15	2,400	
5		Cash	11		2,400
6		Paid premium on one-year policy.			
7					
8					
9					

	A	B	C	D	E	F	G
1							
2	**Account**	*Prepaid Insurance*				**Account No.**	*15*
3						**Balance**	
4	**Date**	**Item**	**Post. Ref.**	**Debit**	**Credit**	**Debit**	**Credit**
5	**2011**						
6	=JE!A4		2	=JE!D4		=F5+D6-E6	
7							
8	**Account**	*Cash*				**Account No.**	*11*
9						**Balance**	
10	**Date**	**Item**	**Post. Ref.**	**Debit**	**Credit**	**Debit**	**Credit**
11	**2011**						
12	=JE!A4		2		=JE!E5		
13							
14							
15							

Always precede a cell reference or formula with an = sign.

Build a formula by clicking on a referenced cell.

a. Label a worksheet JE. This will be used as the spreadsheet journal.
b. Create the Dec. 1 *prepaid insurance* journal entry in the JE worksheet.
c. Label a new worksheet "GL" for general ledger.
d. In cell D6 of the GL worksheet, enter a cell reference to the **debit** of Prepaid insurance from the JE worksheet.
e. In cell F6, enter a formula to compute the new balance (previous balance plus debits minus credits, =F5+D6-E6.)
f. In cell E12 (of the GL worksheet), enter a cell reference to the **credit** to Cash from the JE worksheet.

TryIt Go to the hands-on ***Excel Tutor*** for this example!

Transaction *Dec. 1 NetSolutions paid rent for December, $800. The company from which NetSolutions is renting its store space now requires the payment of rent on the first of each month, rather than at the end of the month.*

Analysis

The advance payment of rent is an asset, much like the advance payment of the insurance premium in the preceding transaction. However, unlike the insurance premium, this prepaid rent will expire in one month. When an asset is purchased with the expectation that it will be used up in a short period of time, such as a month, it is normal to debit an expense account initially. This avoids having to transfer the balance from an asset account (Prepaid Rent) to an expense account (Rent Expense) at the end of the month. Thus, this transaction is recorded as an $800 increase (debit) to Rent Expense and an $800 decrease (credit) to Cash.

Journal Entry

		1	Rent Expense	52	800	
			Cash	11		800
			Paid rent for December.			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity (Expense)**

Cash	**11**
	Dec. 1 800

Rent Expense	**52**
Dec. 1 800	

Transaction *Dec. 1 NetSolutions received an offer from a local retailer to rent the land purchased on November 5. The retailer plans to use the land as a parking lot for its employees and customers. NetSolutions agreed to rent the land to the retailer for three months, with the rent payable in advance. NetSolutions received $360 for three months' rent beginning December 1.*

Analysis

By agreeing to rent the land and accepting the $360, NetSolutions has incurred an obligation (liability) to the retailer. This obligation is to make the land available for use for three months and not to interfere with its use. The liability created by receiving the cash in advance of providing the service is called **unearned revenue**. As time passes, the unearned rent liability will decrease and will become revenue. Thus, this transaction is recorded as a $360 increase (debit) to Cash and a $360 increase (credit) to Unearned Rent.

Journal Entry

		1	Cash	11	360	
			Unearned Rent	23		360
			Received advance payment for three months' rent on land.			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity**

Cash	**11**
Dec. 1 360	

Unearned Rent	**23**
	Dec. 1 360

Transaction *Dec. 4 NetSolutions purchased office equipment on account from Executive Supply Co. for $1,800.*

Analysis

The asset (Office Equipment) and liability accounts (Accounts Payable) increase. This transaction is recorded as a $1,800 increase (debit) to Office Equipment and a $1,800 increase (credit) to Accounts Payable.

Journal Entry

		4	Office Equipment	18	1,800	
			Accounts Payable	21		1,800
			Purchased office equipment on account.			

Assets = **Liabilities** + **Owner's Equity**

Office Equipment 18	
Dec. 4 1,800	

Accounts Payable 21	
	Dec. 4 1,800

Accounting Equation Impact

Dec. 6 NetSolutions paid $180 for a newspaper advertisement.

Transaction

An expense increases and an asset (Cash) decreases. Expense items that are expected to be minor in amount are normally included as part of the miscellaneous expense. This transaction is recorded as a $180 increase (debit) to Miscellaneous Expense and a $180 decrease (credit) to Cash.

Analysis

		Description	Post. Ref.	Debit	Credit
	6	Miscellaneous Expense	59	180	
		Cash	11		180
		Paid for newspaper advertisement.			

Journal Entry

Assets = **Liabilities** + **Owner's Equity (Expense)**

Cash 11	
	Dec. 6 180

Miscellaneous Exp. 59	
Dec. 6 180	

Accounting Equation Impact

Dec. 11 NetSolutions paid creditors $400.

Transaction

A liability (Accounts Payable) and an asset (Cash) decrease. This transaction is recorded as a $400 decrease (debit) to Accounts Payable and a $400 decrease (credit) to Cash.

Analysis

		Description	Post. Ref.	Debit	Credit
	11	Accounts Payable	21	400	
		Cash	11		400
		Paid creditors on account.			

Journal Entry

Assets = **Liabilities** + **Owner's Equity**

Cash 11	
	Dec. 11 400

Accounts Payable 21	
Dec. 11 400	

Accounting Equation Impact

Dec. 13 NetSolutions paid a receptionist and a part-time assistant $950 for two weeks' wages.

Transaction

This transaction is similar to the December 6 transaction, where an expense account is increased and Cash is decreased. This transaction is recorded as a $950 increase (debit) to Wages Expense and a $950 decrease (credit) to Cash.

Analysis

Journal Page 3

Date		Description	Post. Ref.	Debit	Credit
2011					
Dec.	13	Wages Expense	51	950	
		Cash	11		950
		Paid two weeks' wages.			

Journal Entry

Assets = **Liabilities** + **Owner's Equity (Expense)**

Cash 11	
	Dec. 13 950

Wages Expense 51	
Dec. 13 950	

Accounting Equation Impact

BusinessConnection

COMPUTERIZED ACCOUNTING SYSTEMS

Computerized accounting systems are widely used by even the smallest of companies. These systems simplify the record keeping process in that transactions are recorded in electronic forms. Forms used to bill customers for services provided are often completed using drop down menus that list services that are normally provided to customers. An auto-complete entry feature may also be used to fill in customer names. For example, type "ca" to display customers with names beginning with "Ca" (Caban, Cahill, Carey, and Caswell). And, to simplify data entry, entries are automatically posted to the ledger accounts when the electronic form is completed.

One popular accounting software package used by small- to medium-sized businesses is QuickBooks®. Some examples of using QuickBooks to record accounting transactions are illustrated and discussed in Chapter 5.

Transaction *Dec. 16 NetSolutions received $3,100 from fees earned for the first half of December.*

Analysis

An asset account (Cash) and a revenue account (Fees Earned) increase. This transaction is recorded as a $3,100 increase (debit) to Cash and a $3,100 increase (credit) to Fees Earned.

Journal Entry

16	Cash	11	3,100		
	Fees Earned	41		3,100	
	Received fees from customers.				

Accounting Equation Impact

Assets		=	Liabilities	+	Owner's Equity (Revenue)	
Cash	**11**				**Fees Earned**	**41**
Dec. 16 3,100						Dec. 16 3,100

Transaction *Dec. 16 Fees earned on account totaled $1,750 for the first half of December.*

Analysis

When a business agrees that a customer may pay for services provided at a later date, an **account receivable** is created. An account receivable is a claim against the customer. An account receivable is an asset, and the revenue is earned even though no cash has been received. Thus, this transaction is recorded as a $1,750 increase (debit) to Accounts Receivable and a $1,750 increase (credit) to Fees Earned.

Journal Entry

16	Accounts Receivable	12	1,750		
	Fees Earned	41		1,750	
	Fees earned on account.				

Accounting Equation Impact

Assets		=	Liabilities	+	Owner's Equity (Revenue)	
Accounts Receivable	**12**				**Fees Earned**	**41**
Dec. 16 1,750						Dec. 16 1,750

Example Exercise 2-3 Journal Entry for Fees Earned

OBJ. 3

Prepare a journal entry on August 7 for the fees earned on account, $115,000.

Follow My Example 2-3

Aug. 7	Accounts Receivable	115,000	
	Fees Earned		115,000

Practice Exercises: **PE 2-3A, PE 2-3B**

Transaction

Dec. 20 NetSolutions paid $900 to Executive Supply Co. on the $1,800 debt owed from the December 4 transaction.

Analysis

This is similar to the transaction of December 11. This transaction is recorded as a $900 decrease (debit) to Accounts Payable and a $900 decrease (credit) to Cash.

Journal Entry

	20	Accounts Payable	21	900	
		Cash	11		900
		Paid creditors on account.			

Accounting Equation Impact

Assets = Liabilities + Owner's Equity

Cash			11
		Dec. 20	900

Accounts Payable			21
Dec. 20	900		

Transaction

Dec. 21 NetSolutions received $650 from customers in payment of their accounts.

Analysis

When customers pay amounts owed for services they have previously received, one asset increases and another asset decreases. This transaction is recorded as a $650 increase (debit) to Cash and a $650 decrease (credit) to Accounts Receivable.

Journal Entry

	21	Cash	11	650	
		Accounts Receivable	12		650
		Received cash from customers on account.			

Accounting Equation Impact

Assets = Liabilities + Owner's Equity

Cash			11
Dec. 21	650		

Accounts Receivable			12
		Dec. 21	650

Transaction

Dec. 23 NetSolutions paid $1,450 for supplies.

Analysis

One asset account (Supplies) increases and another asset account (Cash) decreases. This transaction is recorded as a $1,450 increase (debit) to Supplies and a $1,450 decrease (credit) to Cash.

Journal Entry

	23	Supplies	14	1,450	
		Cash	11		1,450
		Purchased supplies.			

Accounting Equation Impact

Assets = Liabilities + Owner's Equity

Cash			11
		Dec. 23	1,450

Supplies			14
Dec. 23	1,450		

Transaction *Dec. 27 NetSolutions paid the receptionist and the part-time assistant $1,200 for two weeks' wages.*

Analysis This transaction is similar to the transaction of December 13. This transaction is recorded as a $950 increase (debit) to Wages Expense and a $950 decrease (credit) to Cash.

Journal Entry

	27	Wages Expense	51	1,200	
		Cash	11		1,200
		Paid two weeks' wages.			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity (Expense)**

Cash	**11**
	Dec. 27 1,200

Wages Expense	**51**
Dec. 27 1,200	

Transaction *Dec. 31 NetSolutions paid its $310 telephone bill for the month.*

Analysis This is similar to the transaction of December 6. This transaction is recorded as a $310 increase (debit) to Utilities Expense and a $310 decrease (credit) to Cash.

Journal Entry

	31	Utilities Expense	54	310	
		Cash	11		310
		Paid telephone bill.			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity (Expense)**

Cash	**11**
	Dec. 31 310

Utilities Expense	**54**
Dec. 31 310	

Transaction *Dec. 31 NetSolutions paid its $225 electric bill for the month.*

Analysis This is similar to the preceding transaction. This transaction is recorded as a $225 increase (debit) to Utilities Expense and a $225 decrease (credit) to Cash.

Journal Entry

Journal Page 4

Date		Description	Post. Ref.	Debit	Credit
2011					
Dec.	31	Utilities Expense	54	225	
		Cash	11		225
		Paid electric bill.			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity (Expense)**

Cash	**11**
	Dec. 31 225

Utilities Expense	**54**
Dec. 31 225	

Transaction *Dec. 31 NetSolutions received $2,870 from fees earned for the second half of December.*

Analysis This is similar to the transaction of December 16. This transaction is recorded as a $2,870 increase (debit) to Cash and a $2,870 increase (credit) to Fees Earned.

Journal Entry

	31	Cash	11	2,870	
		Fees Earned	41		2,870
		Received fees from customers.			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity (Revenue)**

Cash	**11**
Dec. 31 2,870	

Fees Earned	**41**
	Dec. 31 2,870

Transaction

Dec. 31 Fees earned on account totaled $1,120 for the second half of December.

Analysis

This is similar to the transaction of December 16. This transaction is recorded as a $1,120 increase (debit) to Accounts Receivable and a $1,120 increase (credit) to Fees Earned.

Journal Entry

		31	Accounts Receivable	12	1,120	
			Fees Earned	41		1,120
			Fees earned on account.			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity (Revenue)**

Accounts Receivable	**12**
Dec. 31 1,120	

Fees Earned	**41**
	Dec. 31 1,120

Transaction

Dec. 31 Chris Clark withdrew $2,000 for personal use.

Analysis

This transaction decreases owner's equity and assets. This transaction is recorded as a $2,000 increase (debit) to Chris Clark, Drawing and a $2,000 decrease (credit) to Cash.

Journal Entry

		31	Chris Clark, Drawing	32	2,000	
			Cash	11		2,000
			Chris Clark withdrew cash for personal use.			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity (Drawing)**

Cash	**11**
	Dec. 31 2,000

Chris Clark, Drawing	**32**
Dec. 31 2,000	

Example Exercise 2-4 Journal Entry for Owner's Withdrawal

OBJ. 3

Prepare a journal entry on December 29 for the payment of $12,000 to the owner of Smartstaff Consulting Services, Dominique Walsh, for personal use.

Follow My Example 2-4

Dec. 29	Dominique Walsh, Drawing	12,000	
	Cash		12,000

Practice Exercises: **PE 2-4A, PE 2-4B**

Example Exercise 2-5 Missing Amount from an Account

OBJ. 3

On March 1, the cash account balance was $22,350. During March, cash receipts totaled $241,880 and the March 31 balance was $19,125. Determine the cash payments made during March.

Follow My Example 2-5

Using the following T account, solve for the amount of cash payments (indicated by ? below).

Cash			
Mar. 1 Bal.	22,350	?	Cash payments
Cash receipts	241,880		
Mar. 31 Bal.	19,125		

$19,125 = $22,350 + $241,880 – Cash payments
Cash payments = $22,350 + $241,880 – $19,125 = $245,105

Practice Exercises: **PE 2-5A, PE 2-5B**

Exhibit 5 shows the ledger for NetSolutions after the transactions for both November and December have been posted.

EXHIBIT 5 Ledger NetSolutions

Ledger

Account *Cash* Account No. *11*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 1		1	25,000		25,000	
5		1		20,000	5,000	
18		1	7,500		12,500	
30		1		3,650	8,850	
30		1		950	7,900	
30		2		2,000	5,900	
Dec. 1		2		2,400	3,500	
1		2		800	2,700	
1		2	360		3,060	
6		2		180	2,880	
11		2		400	2,480	
13		3		950	1,530	
16		3	3,100		4,630	
20		3		900	3,730	
21		3	650		4,380	
23		3		1,450	2,930	
27		3		1,200	1,730	
31		3		310	1,420	
31		4		225	1,195	
31		4	2,870		4,065	
31		4		2,000	2,065	

Account *Accounts Receivable* Account No. *12*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 16		3	1,750		1,750	
21		3		650	1,100	
31		4	1,120		2,220	

Account *Supplies* Account No. *14*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 10		1	1,350		1,350	
30		1		800	550	
Dec. 23		3	1,450		2,000	

Account *Prepaid Insurance* Account No. *15*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 1		2	2,400		2,400	

Account *Land* Account No. *17*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 5		1	20,000		20,000	

Account *Office Equipment* Account No. *18*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 4		2	1,800		1,800	

Account *Accounts Payable* Account No. *21*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 10		1		1,350		1,350
30		1	950			400
Dec. 4		2		1,800		2,200
11		2	400			1,800
20		3	900			900

Account *Unearned Rent* Account No. *23*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 1		2		360		360

Account *Chris Clark, Capital* Account No. *31*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 1		1		25,000		25,000

Account *Chris Clark, Drawing* Account No. *32*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		2	2,000		2,000	
Dec. 31		4	2,000		4,000	

EXHIBIT 5 Ledger NetSolutions *(concluded)*

Account *Fees Earned* Account No. *41*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 18		1		7,500		7,500
Dec. 16		3		3,100		10,600
16		3		1,750		12,350
31		4		2,870		15,220
31		4		1,120		16,340

Account *Wages Expense* Account No. *51*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	2,125		2,125	
Dec. 13		3	950		3,075	
27		3	1,200		4,275	

Account *Rent Expense* Account No. 52

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	800		800	
Dec. 1		2	800		1,600	

Account *Utilities Expense* Account No. *54*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	450		450	
Dec. 31		3	310		760	
31		4	225		985	

Account *Supplies Expense* Account No. 55

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	800		800	

Account *Miscellaneous Expense* Account No. 59

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	275		275	
Dec. 6		2	180		455	

Trial Balance

OBJ 4 Prepare an unadjusted trial balance and explain how it can be used to discover errors.

Errors may occur in posting debits and credits from the journal to the ledger. One way to detect such errors is by preparing a **trial balance**. Double-entry accounting requires that debits must always equal credits. The trial balance verifies this equality. The steps in preparing a trial balance are as follows:

Step 1. List the name of the company, the title of the trial balance, and the date the trial balance is prepared.
Step 2. List the accounts from the ledger and enter their debit or credit balance in the Debit or Credit column of the trial balance.
Step 3. Total the Debit and Credit columns of the trial balance.
Step 4. Verify that the total of the Debit column equals the total of the Credit column.

The trial balance for NetSolutions as of December 31, 2011, is shown in Exhibit 6. The account balances in Exhibit 6 are taken from the ledger shown in Exhibit 5. Before a trial balance is prepared, each account balance in the ledger must be determined. When the standard account form is used as in Exhibit 5, the balance of each account appears in the balance column on the same line as the last posting to the account.

EXHIBIT 6

Trial Balance

Step 1

Step 2

NetSolutions
Unadjusted Trial Balance
December 31, 2011

	Debit Balances	Credit Balances
Cash	2,065	
Accounts Receivable	2,220	
Supplies	2,000	
Prepaid Insurance	2,400	
Land	20,000	
Office Equipment	1,800	
Accounts Payable		900
Unearned Rent		360
Chris Clark, Capital		25,000
Chris Clark, Drawing	4,000	
Fees Earned		16,340
Wages Expense	4,275	
Rent Expense	1,600	
Utilities Expense	985	
Supplies Expense	800	
Miscellaneous Expense	455	
	42,600	42,600

Steps 3–4

The trial balance shown in Exhibit 6 is titled an **unadjusted trial balance**. This is to distinguish it from other trial balances that will be prepared in later chapters. These other trial balances include an adjusted trial balance and a post-closing trial balance.[3]

Errors Affecting the Trial Balance

If the trial balance totals are not equal, an error has occurred. In this case, the error must be found and corrected. A method useful in discovering errors is as follows:

1. If the difference between the Debit and Credit column totals is 10, 100, or 1,000, an error in addition may have occurred. In this case, re-add the trial balance column totals. If the error still exists, recompute the account balances.
2. If the difference between the Debit and Credit column totals can be evenly divisible by 2, the error may be due to the entering of a debit balance as a credit balance, or vice versa. In this case, review the trial balance for account balances of one-half the difference that may have been entered in the wrong column. For example, if the Debit column total is $20,640 and the Credit column total is $20,236, the difference of $404 ($20,640 – $20,236) may be due to a credit account balance of $202 that was entered as a debit account balance.
3. If the difference between the Debit and Credit column totals is evenly divisible by 9, trace the account balances back to the ledger to see if an account balance was incorrectly copied from the ledger. Two common types of copying errors are transpositions and slides. A **transposition** occurs when the order of the digits is copied incorrectly, such as writing $542 as $452 or $524. In a **slide**, the entire number is copied incorrectly one or more spaces to the right or the left, such as writing $542.00 as $54.20 or $5,420.00. In both cases, the resulting error will be evenly divisible by 9.
4. If the difference between the Debit and Credit column totals is not evenly divisible by 2 or 9, review the ledger to see if an account balance in the amount of

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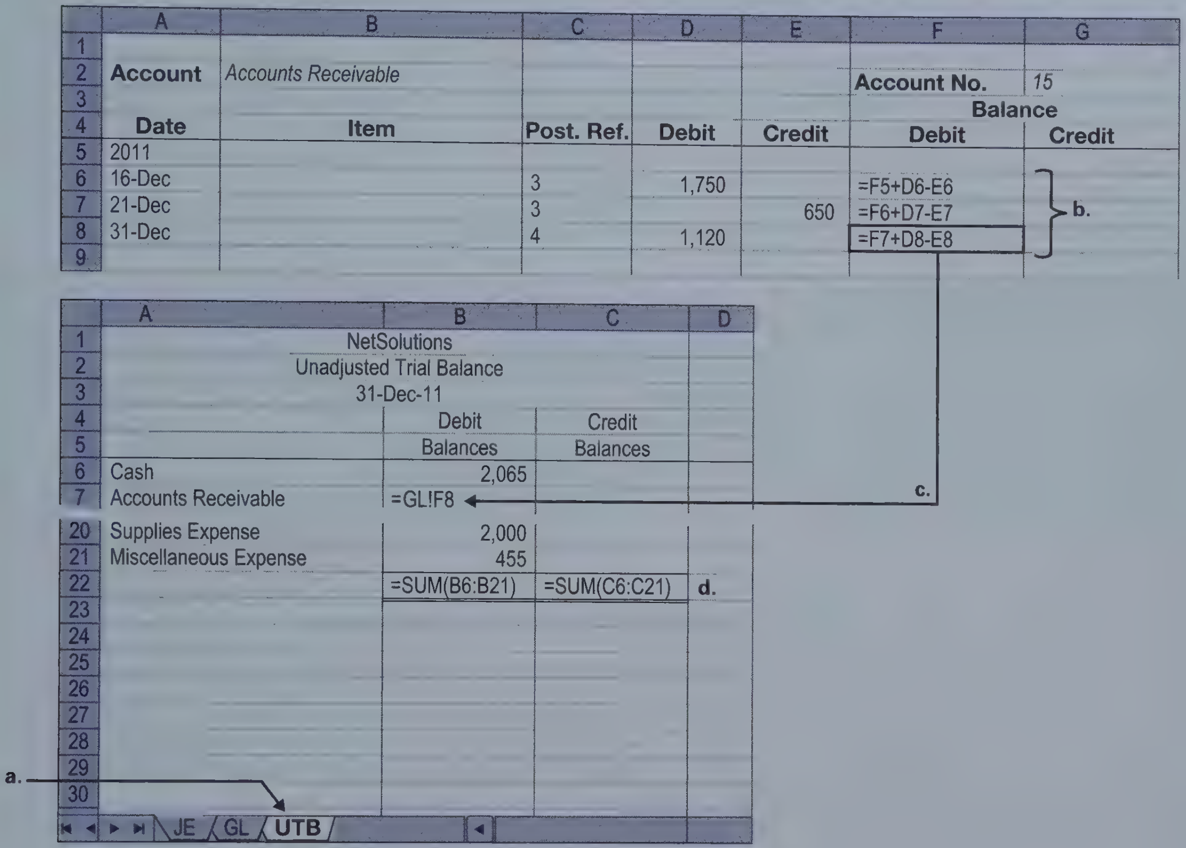
[3] The adjusted trial balance is discussed in Chapter 3, and the post-closing trial balance is discussed in Chapter 4.

excel SUCCESS The unadjusted trial balance can be created on a spreadsheet. The unadjusted trial balance references the ledger account balances. To illustrate, the relationship between the Accounts Receivable account and unadjusted trial balance is as follows:



	A	B	C	D	E	F	G
1							
2	**Account**	*Accounts Receivable*				**Account No.**	*15*
3						**Balance**	
4	**Date**	**Item**	**Post. Ref.**	**Debit**	**Credit**	**Debit**	**Credit**
5	2011						
6	16-Dec		3	1,750		=F5+D6-E6	
7	21-Dec		3		650	=F6+D7-E7	
8	31-Dec		4	1,120		=F7+D8-E8	
9							

	A	B	C	D
1		NetSolutions		
2		Unadjusted Trial Balance		
3		31-Dec-11		
4		Debit	Credit	
5		Balances	Balances	
6	Cash	2,065		
7	Accounts Receivable	=GL!F8		
20	Supplies Expense	2,000		
21	Miscellaneous Expense	455		
22		=SUM(B6:B21)	=SUM(C6:C21)	
23				
24				
25				
26				
27				
28				
29				
30				

a. Label the third worksheet "UTB" for unadjusted trial balance.

b. Previously, a formula that computes the account balance was created. This formula is copied down to create a cumulative balance. As of December 21st, the value in cell F7 represents the total. This total computes the total from December 16th plus any debit amounts less any credit amounts.

c. In cell B7 (of the UTB worksheet), a cell reference is created for the December 31st balance in the Accounts Receivable ledger account. This balance is in cell F8 (of the GL worksheet). The reference is =GL!F8.

d. The debit and credit columns of the trial balance are summed using the sum formula. The sum formula for the **debit** column is =SUM(B6:B21)

The Excel sum function, begins with an equal sign "=" followed by the word "SUM"

The range to be summed is created by referencing the first cell of the range (B6) followed by a colon (this denotes a range) followed by the last cell of the range (B21).

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Try*It* The Excel Success example shows the creation of journal entry transactions, posting to general ledger accounts, and the unadjusted trial balance. Within that tutorial, accounting formatting is discussed. Go to the ***Excel Tutor*** titled **Accounting Formatting** for additional information!

the error has been omitted from the trial balance. If the error is not discovered, review the journal postings to see if a posting of a debit or credit may have been omitted.

5. If an error is not discovered by the preceding steps, the accounting process must be retraced, beginning with the last journal entry.

The trial balance does not provide complete proof of the accuracy of the ledger. It indicates only that the debits and the credits are equal. This proof is of value, however, because errors often affect the equality of debits and credits.

Example Exercise 2-6 Trial Balance Errors

OBJ 4

For each of the following errors, considered individually, indicate whether the error would cause the trial balance totals to be unequal. If the error would cause the trial balance totals to be unequal, indicate whether the debit or credit total is higher and by how much.

a. Payment of a cash withdrawal of $5,600 was journalized and posted as a debit of $6,500 to Salary Expense and a credit of $6,500 to Cash.

b. A fee of $2,850 earned from a client was debited to Accounts Receivable for $2,580 and credited to Fees Earned for $2,850.

c. A payment of $3,500 to a creditor was posted as a debit of $3,500 to Accounts Payable and a debit of $3,500 to Cash.

Follow My Example 2-6

a. The totals are equal since both the debit and credit entries were journalized and posted for $6,500..

b. The totals are unequal. The credit total is higher by $270 ($2,850 – $2,580).

c. The totals are unequal. The debit total is higher by $7,000 ($3,500 + $3,500).

Practice Exercises: **PE 2-6A, PE 2-6B**

Errors Not Affecting the Trial Balance

An error may occur that does not cause the trial balance totals to be unequal. Such an error may be discovered when preparing the trial balance or may be indicated by an unusual account balance. For example, a credit balance in the supplies account indicates an error has occurred. This is because a business cannot have "negative" supplies. When such errors are discovered, they should be corrected. If the error has already been journalized and posted to the ledger, a **correcting journal entry** is normally prepared.

To illustrate, assume that on May 5 a $12,500 purchase of office equipment on account was incorrectly journalized and posted as a debit to Supplies and a credit to Accounts Payable for $12,500. This posting of the incorrect entry is shown in the following T accounts:

Incorrect:

Supplies	
12,500	

Accounts Payable	
	12,500

Before making a correcting journal entry, it is best to determine the debit(s) and credit(s) that should have been recorded. These are shown in the following T accounts:

Correct:

Office Equipment	
12,500	

Accounts Payable	
	12,500

Comparing the two sets of T accounts shows that the incorrect debit to Supplies may be corrected by debiting Office Equipment for $12,500 and crediting Supplies for $12,500. The following correcting journal entry is then journalized and posted:

Entry to Correct Error:

	May	31	Office Equipment	18	12,500	
			Supplies	14		12,500
			To correct erroneous debit to Supplies on May 5. See invoice from Bell Office Equipment Co.			

Example Exercise 2-7 Correcting Entries

OBJ. 4

The following errors took place in journalizing and posting transactions:

a. A withdrawal of $6,000 by Cheri Ramey, owner of the business, was recorded as a debit to Office Salaries Expense and a credit to Cash.

b. Utilities Expense of $4,500 paid for the current month was recorded as a debit to Miscellaneous Expense and a credit to Accounts Payable.

Journalize the entries to correct the errors. Omit explanations.

Follow My Example 2-7

a.	Cheri Ramey, Drawing	6,000	
	Office Salaries Expense		6,000
b.	Accounts Payable	4,500	
	Miscellaneous Expense		4,500
	Utilities Expense	4,500	
	Cash		4,500

Note: The first entry in (b) reverses the incorrect entry, and the second entry records the correct entry. These two entries could also be combined into one entry; however, preparing two entries will make it easier for someone later to understand what had happened and why the entries were necessary.

Practice Exercises: **PE 2-7A, PE 2-7B**

Financial Analysis and Interpretation: Horizontal Analysis

F·A·I

OBJ. 5 Describe and illustrate the use of horizontal analysis in evaluating a company's performance and financial condition.

A single item in a financial statement, such as net income, is often useful in interpreting the financial performance of a company. However, a comparison with prior periods often makes the financial information even more useful. For example, comparing net income of the current period with the net income with the prior period will indicate whether the company's operating performance has improved.

In **horizontal analysis**, the amount of each item on a current financial statement is compared with the same item on an earlier statement. The increase or decrease in the *amount* of the item is computed together with the *percent* of increase or decrease. When two statements are being compared, the earlier statement is used as the base for computing the amount and the percent of change.

To illustrate, the horizontal analysis of two income statements for J. Holmes, Attorney-at-Law, is shown below.

J. Holmes, Attorney-at-Law
Income Statements
For the Years Ended December 31

	2012	2011	Increase (Decrease) Amount	Increase (Decrease) Percent
Fees earned	$187,500	$150,000	$37,500	25.0%*
Operating expenses:				
Wages expense	$ 60,000	$ 45,000	$15,000	33.3
Rent expense	15,000	12,000	3,000	25.0
Utilities expense	12,500	9,000	3,500	38.9
Supplies expense	2,700	3,000	(300)	(10.0)
Miscellaneous expense	2,300	1,800	500	27.8
Total operating expenses	$ 92,500	$ 70,800	$21,700	30.6
Net income	$ 95,000	$ 79,200	$15,800	19.9

*$37,500 ÷ $150,000

The horizontal analysis for J. Holmes, Attorney-at-Law, indicates both favorable and unfavorable trends. The increase in fees earned is a favorable trend, as is the decrease in supplies expense. Unfavorable trends include the increase in wages expense, utilities expense, and miscellaneous expense. These expenses increased the same as or faster than the increase in revenues, with total operating expenses increasing by 30.6%. Overall, net income increased by $15,800, or 19.9%, a favorable trend.

The significance of the various increases and decreases in the revenue and expense items should be investigated to see if operations could be further improved. For example, the increase in utilities expense of 38.9% was the result of renting additional office space for use by a part-time law student in performing paralegal services. This explains the increase in rent expense of 25% and the increase in wages expense of 33.3%. The increase in revenues of 25% reflects the fees generated by the new paralegal.

The preceding example illustrates how horizontal analysis can be useful in interpreting and analyzing the income statement. Horizontal analyses can also be performed for the balance sheet, the statement of owner's equity, and the statement of cash flows.

To illustrate, horizontal analysis for Apple Inc.'s 2009 and 2008 statements of cash flows (in millions) is shown below.

Apple Inc.
Statements of Cash Flows
For the Years Ended

	Sept. 26, 2009	Sept. 27, 2008	Increase (Decrease) Amount	Increase (Decrease) Percent
Cash flows from operating activities	$10,159	$ 9,596	$ 563	5.9%
Cash flows used for investing activities	(17,434)	(8,189)	(9,245)	(112.9)
Cash flows from financing activities	663	1,116	(453)	(40.6)
Net increase (decrease) in cash	$ (6,612)	$ 2,523	$(9,135)	(362.1)
Beginning of the year balance of cash	11,875	9,352	2,523	27.0
End of the year balance of cash	$ 5,263	$11,875	$(6,612)	(55.7)

The horizontal analysis of cash flows for Apple Inc. indicates an increase in cash flows from operating activities of 5.9%, which is a favorable trend. At the same time, Apple increased the cash used in its investing activities by over 112.9% and decreased the cash it received from financing activities by 40.6%. Overall, Apple had a 362.1% decrease in cash for the year, which decreased the end of the year cash balance by 55.7%. In contrast, in the prior year Apple increased its ending cash balance, which is the beginning cash balance of the current year, by 27%.

Example Exercise 2-8 Horizontal Analysis

OBJ. 5

Two income statements for McCorkle Company are shown below.

McCorkle Company
Income Statements
For the Years Ended December 31

	2012	2011
Fees earned	$210,000	$175,000
Operating expenses	172,500	150,000
Net income	$ 37,500	$ 25,000

Prepare a horizontal analysis of McCorkle Company's income statements.

Follow My Example 2-8

McCorkle Company
Income Statements
For the Years Ended December 31

			Increase (Decrease)	
	2012	**2011**	**Amount**	**Percent**
Fees earned	$210,000	$175,000	$35,000	20%
Operating expenses	172,500	150,000	22,500	15
Net income	$ 37,500	$ 25,000	$12,500	50

Practice Exercises: **PE 2-8A, PE 2-8B**

At a Glance 2

OBJ. 1

Describe the characteristics of an account and a chart of accounts.

Key Points The simplest form of an account, a T account, has three parts: (1) a title, which is the name of the item recorded in the account; (2) a left side, called the debit side; and (3) a right side, called the credit side. Periodically, the debits in an account are added, the credits in the account are added, and the balance of the account is determined.

The system of accounts that make up a ledger is called a chart of accounts.

Learning Outcomes	Example Exercises	Practice Exercises
• Record transactions in T accounts.		
• Determine the balance of a T account.		
• Prepare a chart of accounts for a proprietorship.		

OBJ. 2 Describe and illustrate journalizing transactions using the double-entry accounting system.

Key Points Transactions are initially entered in a record called a journal. The rules of debit and credit for recording increases or decreases in accounts are shown in Exhibit 3. Each transaction is recorded so that the sum of the debits is always equal to the sum of the credits. The normal balance of an account is indicated by the side of the account (debit or credit) that receives the increases.

Learning Outcomes	Example Exercises	Practice Exercises
• Indicate the normal balance of an account.	EE2-1	PE2-1A, 2-1B
• Journalize transactions using the rules of debit and credit.	EE2-2	PE2-2A, 2-2B

OBJ. 3 Describe and illustrate the journalizing and posting of transactions to accounts.

Key Points Transactions are journalized and posted to the ledger using the rules of debit and credit. The debits and credits for each journal entry are posted to the accounts in the order in which they occur in the journal.

Learning Outcomes	Example Exercises	Practice Exercises
• Journalize transactions using the rules of debit and credit.	EE2-3	PE2-3A, 2-3B
• Given other account data, determine the missing amount of an account entry.	EE2-4	PE2-4A, 2-4B
• Post journal entries to a standard account.	EE2-5	PE2-5A, 2-5B
• Post journal entries to a T account.		

OBJ. 4 Prepare an unadjusted trial balance and explain how it can be used to discover errors.

Key Points A trial balance is prepared by listing the accounts from the ledger and their balances. The totals of the Debit column and Credit column of the trial balance must be equal. If the two totals are not equal, an error has occurred. Errors may occur even though the trial balance totals are equal. Such errors may require a correcting journal entry.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare an unadjusted trial balance.		
• Discover errors that cause unequal totals in the trial balance.	EE2-6	PE2-6A, 2-6B
• Prepare correcting journal entries for various errors.	EE2-7	PE2-7A, 2-7B

OBJ. 5

Describe and illustrate the use of horizontal analysis in evaluating a company's performance and financial condition.

Key Points In horizontal analysis, the amount of each item on a current financial statement is compared with the same item on an earlier statement. The increase or decrease in the *amount* of the item is computed together with the *percent* of increase or decrease. When two statements are being compared, the earlier statement is used as the base for computing the amount and the percent of change.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe horizontal analysis.		
• Prepare a horizontal analysis report of a financial statement.	EE2-8	PE2-8A, 2-8B

Key Terms

account (50)
account receivable (64)
assets (52)
balance of the account (51)
capital account (52)
chart of accounts (52)
correcting journal entry (72)
credit (51)
debit (51)
double-entry accounting system (53)
drawing (52)
expenses (53)
horizontal analysis (73)
journal (55)
journal entry (56)
journalizing (56)
ledger (52)
liabilities (52)
normal balance of an account (54)
owner's equity (52)
posting (59)
revenues (52)
rules of debit and credit (53)
slide (70)
T account (50)
transposition (70)
trial balance (69)
unadjusted trial balance (70)
unearned revenue (62)

Illustrative Problem

J. F. Outz, M.D., has been practicing as a cardiologist for three years. During April 2011, Outz completed the following transactions in her practice of cardiology:

Apr. 1. Paid office rent for April, $800.
3. Purchased equipment on account, $2,100.
5. Received cash on account from patients, $3,150.
8. Purchased X-ray film and other supplies on account, $245.
9. One of the items of equipment purchased on April 3 was defective. It was returned with the permission of the supplier, who agreed to reduce the account for the amount charged for the item, $325.
12. Paid cash to creditors on account, $1,250.

Apr. 17. Paid cash for renewal of a six-month property insurance policy, $370.

20. Discovered that the balances of the cash account and the accounts payable account as of April 1 were overstated by $200. A payment of that amount to a creditor in March had not been recorded. Journalize the $200 payment as of April 20.

24. Paid cash for laboratory analysis, $545.

27. Paid cash from business bank account for personal and family expenses, $1,250.

30. Recorded the cash received in payment of services (on a cash basis) to patients during April, $1,720.

30. Paid salaries of receptionist and nurses, $1,725.

30. Paid various utility expenses, $360.

30. Recorded fees charged to patients on account for services performed in April, $5,145.

30. Paid miscellaneous expenses, $132.

Outz's account titles, numbers, and balances as of April 1 (all normal balances) are listed as follows: Cash, 11, $4,123; Accounts Receivable, 12, $6,725; Supplies, 13, $290; Prepaid Insurance, 14, $465; Equipment, 18, $19,745; Accounts Payable, 22, $765; J. F. Outz, Capital, 31, $30,583; J. F. Outz, Drawing, 32, $0; Professional Fees, 41, $0; Salary Expense, 51, $0; Rent Expense, 53, $0; Laboratory Expense, 55, $0; Utilities Expense, 56, $0; Miscellaneous Expense, 59, $0.

Instructions

1. Open a ledger of standard four-column accounts for Dr. Outz as of April 1. Enter the balances in the appropriate balance columns and place a check mark (✓) in the Posting Reference column. (*Hint:* Verify the equality of the debit and credit balances in the ledger before proceeding with the next instruction.)
2. Journalize each transaction in a two-column journal.
3. Post the journal to the ledger, extending the month-end balances to the appropriate balance columns after each posting.
4. Prepare an unadjusted trial balance as of April 30.

Solution 1., 2., and 3.

Journal Page 27

Date	Description	Post. Ref.	Debit	Credit
2011				
Apr. 1	Rent Expense	53	800	
	Cash	11		800
	Paid office rent for April.			
3	Equipment	18	2,100	
	Accounts Payable	22		2,100
	Purchased equipment on account.			
5	Cash	11	3,150	
	Accounts Receivable	12		3,150
	Received cash on account.			
8	Supplies	13	245	
	Accounts Payable	22		245
	Purchased supplies.			
9	Accounts Payable	22	325	
	Equipment	18		325
	Returned defective equipment.			
12	Accounts Payable	22	1,250	
	Cash	11		1,250
	Paid creditors on account.			
17	Prepaid Insurance	14	370	
	Cash	11		370
	Renewed six-month property policy.			
20	Accounts Payable	22	200	
	Cash	11		200
	Recorded March payment to creditor.			

Journal Page 28

Date	Description	Post. Ref.	Debit	Credit
2011				
Apr. 24	Laboratory Expense	55	545	
	Cash	11		545
	Paid for laboratory analysis.			
27	J. F. Outz, Drawing	32	1,250	
	Cash	11		1,250
	J. F. Outz withdrew cash for personal use.			
30	Cash	11	1,720	
	Professional Fees	41		1,720
	Received fees from patients.			
30	Salary Expense	51	1,725	
	Cash	11		1,725
	Paid salaries.			
30	Utilities Expense	56	360	
	Cash	11		360
	Paid utilities.			
30	Accounts Receivable	12	5,145	
	Professional Fees	41		5,145
	Recorded fees earned on account.			
30	Miscellaneous Expense	59	132	
	Cash	11		132
	Paid expenses.			

Account *Cash* Account No. *11*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 1	Balance	✓			4,123	
1		27		800	3,323	
5		27	3,150		6,473	
12		27		1,250	5,223	
17		27		370	4,853	
20		27		200	4,653	
24		28		545	4,108	
27		28		1,250	2,858	
30		28	1,720		4,578	
30		28		1,725	2,853	
30		28		360	2,493	
30		28		132	2,361	

Account *Accounts Receivable* Account No. *12*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 1	Balance	✓			6,725	
5		27		3,150	3,575	
30		28	5,145		8,720	

Account *Supplies* Account No. *13*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 1	Balance	✓			290	
8		27	245		535	

Account *Prepaid Insurance* Account No. *14*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 1	Balance	✓			465	
17		27	370		835	

Account *Equipment* Account No. *18*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 1	Balance	✓			19,745	
3		27	2,100		21,845	
9		27		325	21,520	

Account *Accounts Payable* Account No. *22*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 1	Balance	✓				765
3		27		2,100		2,865
8		27		245		3,110
9		27	325			2,785
12		27	1,250			1,535
20		27	200			1,335

Account *J. F. Outz, Capital* Account No. *31*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 1	Balance	✓				30,583

Account *J. F. Outz, Drawing* Account No. *32*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 27		28	1,250		1,250	

Account *Professional Fees* Account No. *41*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 30		28		1,720		1,720
30		28		5,145		6,865

Account *Salary Expense* Account No. *51*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 30		28	1,725		1,725	

Account *Rent Expense* Account No. *53*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 1		27	800		800	

Account *Laboratory Expense* Account No. *55*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 24		28	545		545	

Account *Utilities Expense* Account No. *56*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 30		28	360		360	

Account *Miscellaneous Expense* Account No. *59*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Apr. 30		28	132		132	

4.

J. F. Outz, M.D.
Unadjusted Trial Balance
April 30, 2011

	Debit Balances	Credit Balances
Cash	2,361	
Accounts Receivable	8,720	
Supplies	535	
Prepaid Insurance	835	
Equipment	21,520	
Accounts Payable		1,335
J. F. Outz, Capital		30,583
J. F. Outz, Drawing	1,250	
Professional Fees		6,865
Salary Expense	1,725	
Rent Expense	800	
Laboratory Expense	545	
Utilities Expense	360	
Miscellaneous Expense	132	
	38,783	38,783

Discussion Questions

1. What is the difference between an account and a ledger?
2. Do the terms *debit* and *credit* signify increase or decrease or can they signify either? Explain.
3. Weir Company adheres to a policy of depositing all cash receipts in a bank account and making all payments by check. The cash account as of December 31 has a credit balance of $3,190, and there is no undeposited cash on hand. (a) Assuming no errors occurred during journalizing or posting, what caused this unusual balance? (b) Is the $3,190 credit balance in the cash account an asset, a liability, owner's equity, a revenue, or an expense?
4. Resource Services Company performed services in February for a specific customer, for a fee of $11,250. Payment was received the following March. (a) Was the revenue earned in February or March? (b) What accounts should be debited and credited in (1) February and (2) March?
5. If the two totals of a trial balance are equal, does it mean that there are no errors in the accounting records? Explain.
6. Assume that a trial balance is prepared with an account balance of $21,740 listed as $2,174 and an account balance of $4,500 listed as $5,400. Identify the transposition and the slide.
7. Assume that when a purchase of supplies of $3,100 for cash was recorded, both the debit and the credit were journalized and posted as $1,300. (a) Would this error cause the trial balance to be out of balance? (b) Would the trial balance be out of balance if the $3,100 entry had been journalized correctly but the credit to Cash had been posted as $1,300?
8. Assume that Timberline Consulting erroneously recorded the payment of $9,000 of owner withdrawals as a debit to Salary Expense. (a) How would this error affect the equality of the trial balance? (b) How would this error affect the income statement, statement of owner's equity, and balance sheet?
9. Assume that Western Realty Co. borrowed $200,000 from Mountain First Bank and Trust. In recording the transaction, Western erroneously recorded the receipt as a debit to Cash, $200,000, and a credit to Fees Earned, $200,000. (a) How would this error affect the equality of the trial balance? (b) How would this error affect the income statement, statement of owner's equity, and balance sheet?
10. Checking accounts are the most common form of deposits for banks. Assume that Village Storage has a checking account at Camino Savings Bank. What type of account (asset, liability, owner's equity, revenue, expense, drawing) does the account balance of $8,750 represent from the viewpoint of (a) Village Storage and (b) Camino Savings Bank?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 2 **EE 2-1** *p. 54*

PE 2-1A Rules of debit and credit and normal balances

State for each account whether it is likely to have (a) debit entries only, (b) credit entries only, or (c) both debit and credit entries. Also, indicate its normal balance.

1. Accounts Receivable
2. Commissions Earned
3. Notes Payable
4. Paul Howe, Capital
5. Rent Revenue
6. Wages Expense

OBJ. 2 **EE 2-1** *p. 54*

PE 2-1B Rules of debit and credit and normal balances

State for each account whether it is likely to have (a) debit entries only, (b) credit entries only, or (c) both debit and credit entries. Also, indicate its normal balance.

1. Accounts Payable
2. Cash
3. Malissa Wahl, Drawing
4. Miscellaneous Expense
5. Insurance Expense
6. Fees Earned

OBJ. 2 **EE 2-2** *p. 59*

PE 2-2A Journal entry for asset purchase

Prepare a journal entry for the purchase of office equipment on March 4 for $27,150, paying $5,000 cash and the remainder on account.

OBJ. 2 **EE 2-2** *p. 59*

PE 2-2B Journal entry for asset purchase

Prepare a journal entry for the purchase of office supplies on August 7 for $4,000, paying $1,000 cash and the remainder on account.

OBJ. 3 **EE 2-3** *p. 64*

PE 2-3A Journal entry for fees earned

Prepare a journal entry on September 6 for fees earned on account, $8,000.

OBJ. 3 **EE 2-3** *p. 64*

PE 2-3B Journal entry for fees earned

Prepare a journal entry on May 29 for cash received for services rendered, $5,000.

OBJ. 3 **EE 2-4** *p. 67*

PE 2-4A Journal entry for owner's withdrawal

Prepare a journal entry on December 22 for the withdrawal of $10,000 by Jason Von Pentz for personal use.

OBJ. 3 **EE 2-4** *p. 6*

PE 2-4B Journal entry for owner's withdrawal

Prepare a journal entry on February 3 for the withdrawal of $7,500 by Allene Collette for personal use.

Learning Objectives *Example Exercises*

OBJ. 3 **EE 2-5** *p. 67*

PE 2-5A Missing amount from an account

On June 1, the cash account balance was $17,200. During June, cash payments totaled $178,300, and the June 30 balance was $23,900. Determine the cash receipts during June.

OBJ. 3 **EE 2-5** *p. 67*

PE 2-5B Missing amount from an account

On October 1, the supplies account balance was $900. During October, supplies of $2,750 were purchased, and $1,025 of supplies were on hand as of October 31. Determine supplies expense for October.

OBJ. 4 **EE 2-6** *p. 72*

PE 2-6A Trial balance errors

For each of the following errors, considered individually, indicate whether the error would cause the trial balance totals to be unequal. If the error would cause the trial balance totals to be unequal, indicate whether the debit or credit total is higher and by how much.

a. The payment of an insurance premium of $4,800 for a two-year policy was debited to Prepaid Insurance for $4,800 and credited to Cash for $8,400.

b. A payment of $318 on account was debited to Accounts Payable for $381 and credited to Cash for $381.

c. A purchase of supplies on account for $1,200 was debited to Supplies for $1,200 and debited to Accounts Payable for $1,200.

OBJ. 4 **EE 2-6** *p. 72*

PE 2-6B Trial balance errors

For each of the following errors, considered individually, indicate whether the error would cause the trial balance totals to be unequal. If the error would cause the trial balance totals to be unequal, indicate whether the debit or credit total is higher and by how much.

a. The payment of cash for the purchase of office equipment of $15,000 was debited to Land for $15,000 and credited to Cash for $15,000.

b. The payment of $5,200 on account was debited to Accounts Payable for $520 and credited to Cash for $5,200.

c. The receipt of cash on account of $1,270 was recorded as a debit to Cash for $1,720 and a credit to Accounts Receivable for $1,270.

OBJ. 4 **EE 2-7** *p. 73*

PE 2-7A Correcting entries

The following errors took place in journalizing and posting transactions:

a. Advertising expense of $2,700 paid for the current month was recorded as a debit to Miscellaneous Expense and a credit to Advertising Expense.

b. The payment of $3,950 from a customer on account was recorded as a debit to Cash and a credit to Accounts Payable.

Journalize the entries to correct the errors. Omit explanations.

OBJ. 4 **EE 2-7** *p. 73*

PE 2-7B Correcting entries

The following errors took place in journalizing and posting transactions:

a. The receipt of $5,800 for services rendered was recorded as a debit to Accounts Receivable and a credit to Fees Earned.

b. The purchase of supplies of $1,800 on account was recorded as a debit to Office Equipment and a credit to Supplies.

Journalize the entries to correct the errors. Omit explanations.

OBJ. 5 **EE 2-8** *p. 75*

PE 2-8A Horizontal analysis

Two income statements for Boyer Company are shown on the following page.

F·A·I

Boyer Company
Income Statements
For Years Ended December 31

	2012	2011
Fees earned	$315,000	$300,000
Operating expenses	176,400	180,000
Net income	$138,600	$120,000

Prepare a horizontal analysis of Boyer Company's income statements.

OBJ. 5 EE 2-8 *p. 75*

F·A·I

PE 2-8B Horizontal analysis

Two income statements for Hitt Company are shown below.

Hitt Company
Income Statements
For Years Ended December 31

	2012	2011
Fees earned	$937,500	$750,000
Operating expenses	612,500	500,000
Net income	$325.000	$250,000

Prepare a horizontal analysis of Hitt Company's income statements.

Exercises

OBJ. 1

EX 2-1 Chart of accounts

The following accounts appeared in recent financial statements of Continental Airlines:

Accounts Payable
Air Traffic Liability
Aircraft Fuel Expense
Cargo and Mail Revenue
Commissions (Expense)
Flight Equipment
Landing Fees (Expense)
Passenger Revenue
Purchase Deposits for Flight Equipment
Spare Parts and Supplies

Identify each account as either a balance sheet account or an income statement account. For each balance sheet account, identify it as an asset, a liability, or owner's equity. For each income statement account, identify it as a revenue or an expense.

OBJ. 1

EX 2-2 Chart of accounts

Innerscape Interiors is owned and operated by Jean Cartier, an interior decorator. In the ledger of Innerscape Interiors, the first digit of the account number indicates its major account classification (1—assets, 2—liabilities, 3—owner's equity, 4—revenues, 5—expenses). The second digit of the account number indicates the specific account within each of the preceding major account classifications.

Match each account number with its most likely account in the list below. The account numbers are 11, 12, 13, 21, 31, 32, 41, 51, 52, and 53.

Accounts Payable
Accounts Receivable
Cash
Fees Earned
Jean Cartier, Capital
Jean Cartier, Drawing
Land
Miscellaneous Expense
Supplies Expense
Wages Expense

OBJ. 1

EX 2-3 Chart of accounts

Alpha School is a newly organized business that teaches people how to inspire and influence others. The list of accounts to be opened in the general ledger is as follows:

Accounts Payable
Accounts Receivable
Cash
Equipment
Fees Earned
Jan Pulver, Capital
Jan Pulver, Drawing
Miscellaneous Expense
Prepaid Insurance
Rent Expense
Supplies
Supplies Expense
Unearned Rent
Wages Expense

List the accounts in the order in which they should appear in the ledger of Alpha School and assign account numbers. Each account number is to have two digits: the first digit is to indicate the major classification (1 for assets, etc.), and the second digit is to identify the specific account within each major classification (11 for Cash, etc.).

OBJ. 1,2

EX 2-4 Rules of debit and credit

The following table summarizes the rules of debit and credit. For each of the items (a) through (l), indicate whether the proper answer is a debit or a credit.

	Increase	Decrease	Normal Balance
Balance sheet accounts:			
Asset	(a)	Credit	(b)
Liability	Credit	(c)	(d)
Owner's equity:			
Capital	Credit	(e)	(f)
Drawing	(g)	(h)	(i)
Income statement accounts:			
Revenue	Credit	(j)	(k)
Expense	(l)	Credit	Debit

OBJ. 2

EX 2-5 Normal entries for accounts

During the month, Iris Labs Co. has a substantial number of transactions affecting each of the following accounts. State for each account whether it is likely to have (a) debit entries only, (b) credit entries only, or (c) both debit and credit entries.

1. Accounts Payable
2. Accounts Receivable
3. Cash
4. Fees Earned
5. Insurance Expense
6. Nicki Swanson, Drawing
7. Utilities Expense

OBJ. 1,2

EX 2-6 Normal balances of accounts

Identify each of the following accounts of Advanced Services Co. as asset, liability, owner's equity, revenue, or expense, and state in each case whether the normal balance is a debit or a credit.

a. Accounts Payable
b. Accounts Receivable
c. Barbara Mallary, Capital
d. Barbara Mallary, Drawing
e. Cash
f. Fees Earned
g. Office Equipment
h. Rent Expense
i. Supplies
j. Wages Expense

OBJ. 2

EX 2-7 Transactions

Chalet Co. has the following accounts in its ledger: Cash; Accounts Receivable; Supplies; Office Equipment; Accounts Payable; Andee Freese, Capital; Andee Freese, Drawing; Fees Earned; Rent Expense; Advertising Expense; Utilities Expense; Miscellaneous Expense.

Journalize the following selected transactions for October 2012 in a two-column journal. Journal entry explanations may be omitted.

Oct. 1. Paid rent for the month, $2,000.
2. Paid advertising expense, $900.
5. Paid cash for supplies, $1,300.
6. Purchased office equipment on account, $16,000.
10. Received cash from customers on account, $6,700.
15. Paid creditor on account, $1,200.
27. Paid cash for repairs to office equipment, $600.
30. Paid telephone bill for the month, $180.
31. Fees earned and billed to customers for the month, $26,800.
31. Paid electricity bill for the month, $400.
31. Withdrew cash for personal use, $3,000.

OBJ. 2,3

EX 2-8 Journalizing and posting

On February 3, 2012, Wilco Co. purchased $3,250 of supplies on account. In Wilco Co.'s chart of accounts, the supplies account is No. 15, and the accounts payable account is No. 21.

a. Journalize the February 3, 2012, transaction on page 19 of Wilco Co.'s two-column journal. Include an explanation of the entry.

b. Prepare a four-column account for Supplies. Enter a debit balance of $975 as of February 1, 2012. Place a check mark (✓) in the Posting Reference column.

c. Prepare a four-column account for Accounts Payable. Enter a credit balance of $13,150 as of February 1, 2012. Place a check mark (✓) in the Posting Reference column.

d. Post the February 3, 2012, transaction to the accounts.

e. Do the rules of debit and credit apply to all companies?

OBJ. 2,3

EX 2-9 Transactions and T accounts

The following selected transactions were completed during August of the current year:

1. Billed customers for fees earned, $35,700.
2. Purchased supplies on account, $2,000.
3. Received cash from customers on account, $26,150.
4. Paid creditors on account, $800.

a. Journalize the above transactions in a two-column journal, using the appropriate number to identify the transactions. Journal entry explanations may be omitted.

b. Post the entries prepared in (a) to the following T accounts: Cash, Supplies, Accounts Receivable, Accounts Payable, Fees Earned. To the left of each amount posted in the accounts, place the appropriate number to identify the transactions.

c. Assume that the unadjusted trial balance on August 31 shows a credit balance for Accounts Receivable. Does this credit balance mean an error has occurred?

OBJ. 1,2,3

EX 2-10 Cash account balance

During the month, Lathers Co. received $400,000 in cash and paid out $290,000 in cash.

a. Do the data indicate that Lathers Co. had net income of $110,000 during the month? Explain.

b. If the balance of the cash account is $185,000 at the end of the month, what was the cash balance at the beginning of the month?

OBJ. 1,2,3

✓ c. $284,175

EX 2-11 Account balances

a. During October, $90,000 was paid to creditors on account, and purchases on account were $125,000. Assuming the October 31 balance of Accounts Payable was $40,000, determine the account balance on October 1.

b. On May 1, the accounts receivable account balance was $25,000. During May, $240,000 was collected from customers on account. Assuming the May 31 balance was $36,000, determine the fees billed to customers on account during May.

c. On November 1, the cash account balance was $18,275. During November, cash receipts totaled $279,100 and the November 30 balance was $13,200. Determine the cash payments made during November.

OBJ. 1,2

EX 2-12 Capital account balance

As of January 1, Brenda Cikan, Capital, had a credit balance of $125,000. During the year, withdrawals totaled $7,000, and the business incurred a net loss of $130,000.

a. Compute the balance of Brenda Cikan, Capital, as of the end of the year.

b. Assuming that there have been no recording errors, will the balance sheet prepared at December 31 balance? Explain.

OBJ. 1,2

EX 2-13 Identifying transactions

Southwest Tours Co. is a travel agency. The nine transactions recorded by Southwest Tours during May 2012, its first month of operations, are indicated in the following T accounts:

Cash			
(1)	40,000	(2)	2,000
(7)	10,000	(3)	3,600
		(4)	2,700
		(6)	9,000
		(9)	4,000

Equipment			
(3)	18,000		

Mickey O'Dell, Drawing			
(9)	4,000		

Accounts Receivable			
(5)	18,500	(7)	10,000

Accounts Payable			
(6)	9,000	(3)	14,400

Service Revenue			
		(5)	18,500

Supplies			
(2)	2,000	(8)	1,050

Mickey O'Dell, Capital			
		(1)	40,000

Operating Expenses			
(4)	2,700		
(8)	1,050		

Indicate for each debit and each credit: (a) whether an asset, liability, owner's equity, drawing, revenue, or expense account was affected and (b) whether the account was increased (+) or decreased (–). Present your answers in the following form, with transaction (1) given as an example:

	Account Debited		Account Credited	
Transaction	Type	Effect	Type	Effect
(1)	asset	+	owner's equity	+

OBJ. 1,2

EX 2-14 Journal entries

Based upon the T accounts in Exercise 2-13, prepare the nine journal entries from which the postings were made. Journal entry explanations may be omitted.

OBJ. 4

✓ Total Debit column: $63,900

EX 2-15 Trial balance

Based upon the data presented in Exercise 2-13, (a) prepare an unadjusted trial balance, listing the accounts in their proper order. (b) Based upon the unadjusted trial balance, determine the net income or net loss.

OBJ. 4

✓ Total of Credit column: $491,400

EX 2-16 Trial balance

The accounts in the ledger of Diva Co. as of July 31, 2012, are listed in alphabetical order as follows. All accounts have normal balances. The balance of the cash account has been intentionally omitted.

Accounts Payable	$ 28,000	Notes Payable	$ 50,000
Accounts Receivable	40,000	Prepaid Insurance	6,400
Cash	?	Rent Expense	36,000
Cheryl Sievert, Capital	49,900	Supplies	4,000
Cheryl Sievert, Drawing	25,000	Supplies Expense	9,000
Fees Earned	350,000	Unearned Rent	13,500
Insurance Expense	6,000	Utilities Expense	18,000
Land	125,000	Wages Expense	195,000
Miscellaneous Expense	12,000		

Prepare an unadjusted trial balance, listing the accounts in their normal order and inserting the missing figure for cash.

OBJ. 4

EX 2-17 Effect of errors on trial balance

Indicate which of the following errors, each considered individually, would cause the trial balance totals to be unequal:

a. A fee of $15,000 earned and due from a client was not debited to Accounts Receivable or credited to a revenue account, because the cash had not been received.

b. A receipt of $6,000 from an account receivable was journalized and posted as a debit of $6,000 to Cash and a credit of $6,000 to Fees Earned.

c. A payment of $1,200 to a creditor was posted as a debit of $1,200 to Accounts Payable and a debit of $1,200 to Cash.

d. A payment of $10,000 for equipment purchased was posted as a debit of $1,000 to Equipment and a credit of $1,000 to Cash.

e. Payment of a cash withdrawal of $10,000 was journalized and posted as a debit of $1,000 to Salary Expense and a credit of $10,000 to Cash.

Indicate which of the preceding errors would require a correcting entry.

OBJ. 4

✔ Total of Credit column: $225,000

EX 2-18 Errors in trial balance

The following preliminary unadjusted trial balance of Seats-For-You Co., a sports ticket agency, does not balance:

Seats-For-You Co.
Unadjusted Trial Balance
March 31, 2012

	Debit Balances	Credit Balances
Cash	98,000	
Accounts Receivable	17,800	
Prepaid Insurance		9,000
Equipment	7,500	
Accounts Payable		16,500
Unearned Rent		11,600
Gina Ness, Capital	81,700	
Gina Ness, Drawing	13,000	
Service Revenue		125,000
Wages Expense		60,000
Advertising Expense	11,300	
Miscellaneous Expense		15,400
	229,300	237,500

When the ledger and other records are reviewed, you discover the following: (1) the debits and credits in the cash account total $98,000 and $82,500, respectively; (2) a billing of $8,000 to a customer on account was not posted to the accounts receivable account; (3) a payment of $3,600 made to a creditor on account was not posted to the accounts payable account; (4) the balance of the unearned rent account is $5,400; (5) the correct balance of the equipment account is $75,000; and (6) each account has a normal balance.

Prepare a corrected unadjusted trial balance.

OBJ. 4

EX 2-19 Effect of errors on trial balance

The following errors occurred in posting from a two-column journal:

1. A credit of $7,150 to Accounts Payable was not posted.
2. An entry debiting Accounts Receivable and crediting Fees Earned for $11,000 was not posted.
3. A debit of $1,000 to Accounts Payable was posted as a credit.
4. A debit of $800 to Supplies was posted twice.
5. A debit of $900 to Cash was posted to Miscellaneous Expense.
6. A credit of $360 to Cash was posted as $630.
7. A debit of $9,420 to Wages Expense was posted as $9,240.

Considering each case individually (i.e., assuming that no other errors had occurred), indicate: (a) by "yes" or "no" whether the trial balance would be out of balance; (b) if answer to (a) is "yes," the amount by which the trial balance totals would differ; and (c) whether the Debit or Credit column of the trial balance would have the larger total. Answers should be presented in the following form, with error (1) given as an example:

	(a)	(b)	(c)
Error	Out of Balance	Difference	Larger Total
1.	yes	$7,150	debit

OBJ. 4

✔ Total of Credit column: $750,000

EX 2-20 Errors in trial balance

Identify the errors in the following trial balance. All accounts have normal balances.

Bluefin Co.
Unadjusted Trial Balance
For the Month Ending August 31, 2012

	Debit Balances	Credit Balances
Cash	45,000	
Accounts Receivable		98,400
Prepaid Insurance	21,600	
Equipment	300,000	
Accounts Payable	11,100	
Salaries Payable		7,500
Ken Frye, Capital		259,200
Ken Frye, Drawing		36,000
Service Revenue		472,200
Salary Expense	196,860	
Advertising Expense		43,200
Miscellaneous Expense	8,940	
	916,500	916,500

OBJ. 4

EX 2-21 Entries to correct errors

The following errors took place in journalizing and posting transactions:

a. Rent of $12,500 paid for the current month was recorded as a debit to Rent Expense and a credit to Prepaid Rent.

b. A withdrawal of $7,500 by Trent Benedict, owner of the business, was recorded as a debit to Wages Expense and a credit to Cash.

Journalize the entries to correct the errors. Omit explanations.

OBJ. 4

EX 2-22 Entries to correct errors

The following errors took place in journalizing and posting transactions:

a. Cash of $12,975 received on account was recorded as a debit to Fees Earned and a credit to Cash.

b. A $3,200 purchase of supplies for cash was recorded as a debit to Supplies Expense and a credit to Accounts Payable.

Journalize the entries to correct the errors. Omit explanations.

OBJ. 5

EX 2-23 Horizontal analysis of income statement

The following data (in millions) is taken from the financial statements of Target Corporation.

	2009	2008
Net sales (revenues)	$64,948	$63,367
Total operating expenses	60,546	58,095

a. For Target Corporation, comparing 2009 with 2008, determine the amount of change in millions and the percent of change for:

1. Net sales (revenues)
2. Total operating expenses

b. What conclusions can you draw from your analysis of the net sales and the total operating expenses?

OBJ. 5

EX 2-24 Horizontal analysis of income statement

The following data were adapted from the financial statements of Kmart Corporation, prior to its filing for bankruptcy:

	In millions	
For years ending January 31	2000	1999
Sales	$ 37,028	$ 35,925
Cost of sales (expense)	(29,658)	(28,111)
Selling, general, and administrative expenses	(7,415)	(6,514)
Operating income (loss)	$ (45)	$ 1,300

a. Prepare a horizontal analysis for the income statement showing the amount and percent of change in each of the following:

1. Sales
2. Cost of sales
3. Selling, general, and administrative expenses
4. Operating income (loss)

b. Comment on the results of your horizontal analysis in part (a).

Problems Series A

OBJ. 1,2,3,4

✔ 3. Total of Debit column: $78,350

PR 2-1A Entries into T accounts and trial balance

Leila Durkin, an architect, opened an office on May 1, 2012. During the month, she completed the following transactions connected with her professional practice:

a. Transferred cash from a personal bank account to an account to be used for the business, $30,000.

b. Paid May rent for office and workroom, $3,500.

c. Purchased used automobile for $25,000, paying $5,000 cash and giving a note payable for the remainder.

d. Purchased office and computer equipment on account, $9,000.

e. Paid cash for supplies, $1,200.

f. Paid cash for annual insurance policies, $2,400.

g. Received cash from client for plans delivered, $8,150.

h. Paid cash for miscellaneous expenses, $300.

i. Paid cash to creditors on account, $2,500.

j. Paid installment due on note payable, $400.

k. Received invoice for blueprint service, due in June, $1,200.

l. Recorded fee earned on plans delivered, payment to be received in June, $12,900.

m. Paid salary of assistant, $1,800.

n. Paid gas, oil, and repairs on automobile for May, $600.

Instructions

1. Record the above transactions directly in the following T accounts, without journalizing: Cash; Accounts Receivable; Supplies; Prepaid Insurance; Automobiles; Equipment; Notes Payable; Accounts Payable; Leila Durkin, Capital; Professional Fees; Rent Expense; Salary Expense; Blueprint Expense; Automobile Expense; Miscellaneous Expense. To the left of the amount entered in the accounts, place the appropriate letter to identify the transaction.
2. Determine account balances of the T accounts. Accounts containing a single entry only (such as Prepaid Insurance) do not need a balance.
3. Prepare an unadjusted trial balance for Leila Durkin, Architect, as of May 31, 2012.
4. Determine the net income or net loss for May.

OBJ. 1,2,3,4

✔ 4. c. $8,550

PR 2-2A Journal entries and trial balance

On October 1, 2012, Faith Schultz established Heavenly Realty, which completed the following transactions during the month:

a. Faith Schultz transferred cash from a personal bank account to an account to be used for the business, $20,000.

b. Paid rent on office and equipment for the month, $3,750.

c. Purchased supplies on account, $1,100.

d. Paid creditor on account, $400.

e. Earned sales commissions, receiving cash, $16,750.

f. Paid automobile expenses (including rental charge) for month, $1,000, and miscellaneous expenses, $700.

g. Paid office salaries, $2,150.

h. Determined that the cost of supplies used was $600.

i. Withdrew cash for personal use, $1,000.

Instructions

1. Journalize entries for transactions (a) through (i), using the following account titles: Cash; Supplies; Accounts Payable; Faith Schultz, Capital; Faith Schultz, Drawing; Sales Commissions; Rent Expense; Office Salaries Expense; Automobile Expense; Supplies Expense; Miscellaneous Expense. Explanations may be omitted.
2. Prepare T accounts, using the account titles in (1). Post the journal entries to these accounts, placing the appropriate letter to the left of each amount to identify the transactions. Determine the account balances, after all posting is complete. Accounts containing only a single entry do not need a balance.
3. Prepare an unadjusted trial balance as of October 31, 2012.
4. Determine the following:
   a. Amount of total revenue recorded in the ledger.
   b. Amount of total expenses recorded in the ledger.
   c. Amount of net income for October.
5. Determine the increase or decrease in owner's equity for October.

OBJ. 1,2,3,4

✔ 3. Total of Credit column: $66,500

PR 2-3A Journal entries and trial balance

On April 1, 2012, Kathleen Alvarez established an interior decorating business, Intrex Designs. During the month, Kathleen completed the following transactions related to the business:

Apr. 1. Kathleen transferred cash from a personal bank account to an account to be used for the business, $17,000.
2. Paid rent for period of April 2 to end of month, $3,400.
6. Purchased office equipment on account, $10,000.
8. Purchased a used truck for $21,000, paying $2,000 cash and giving a note payable for the remainder.
10. Purchased supplies for cash, $1,800.
12. Received cash for job completed, $13,000.

Apr. 15. Paid annual premiums on property and casualty insurance, $1,800.

23. Recorded jobs completed on account and sent invoices to customers, $9,000.

24. Received an invoice for truck expenses, to be paid in April, $1,000.

Enter the following transactions on Page 2 of the two-column journal.

29. Paid utilities expense, $1,500.

29. Paid miscellaneous expenses, $750.

30. Received cash from customers on account, $7,800.

30. Paid wages of employees, $4,000.

30. Paid creditor a portion of the amount owed for equipment purchased on April 6, $2,500.

30. Withdrew cash for personal use, $2,000.

Instructions

1. Journalize each transaction in a two-column journal beginning on Page 1, referring to the following chart of accounts in selecting the accounts to be debited and credited. (Do not insert the account numbers in the journal at this time.) Explanations may be omitted.

11	Cash	31	Kathleen Alvarez, Capital
12	Accounts Receivable	32	Kathleen Alvarez, Drawing
13	Supplies	41	Fees Earned
14	Prepaid Insurance	51	Wages Expense
16	Equipment	53	Rent Expense
18	Truck	54	Utilities Expense
21	Notes Payable	55	Truck Expense
22	Accounts Payable	59	Miscellaneous Expense

2. Post the journal to a ledger of four-column accounts, inserting appropriate posting references as each item is posted. Extend the balances to the appropriate balance columns after each transaction is posted.
3. Prepare an unadjusted trial balance for Intrex Designs as of April 30, 2012.
4. Determine the excess of revenues over expenses for April.
5. Can you think of any reason why the amount determined in (4) might not be the net income for April?

OBJ. 1,2,3,4

✓ 4. Total of Debit column: $259,600

PR 2-4A Journal entries and trial balance

Utopia Realty acts as an agent in buying, selling, renting, and managing real estate. The unadjusted trial balance on October 31, 2012, is shown below.

Utopia Realty
Unadjusted Trial Balance
October 31, 2012

		Debit Balances	Credit Balances
11	Cash	13,150	
12	Accounts Receivable	30,750	
13	Prepaid Insurance	1,500	
14	Office Supplies	900	
16	Land	—	
21	Accounts Payable		7,000
22	Unearned Rent		—
23	Notes Payable		—
31	Ian Rogstad, Capital		23,000
32	Ian Rogstad, Drawing	1,000	
41	Fees Earned		120,000
51	Salary and Commission Expense	74,100	
52	Rent Expense	15,000	
53	Advertising Expense	8,900	
54	Automobile Expense	2,750	
59	Miscellaneous Expense	1,950	
		150,000	150,000

The following business transactions were completed by Utopia Realty during November 2012:

Nov. 1. Paid rent on office for month, $5,000.
2. Purchased office supplies on account, $1,300.
5. Paid annual insurance premiums, $3,600.
10. Received cash from clients on account, $25,000.
15. Purchased land for a future building site for $90,000, paying $10,000 in cash and giving a note payable for the remainder.
17. Paid creditors on account, $4,500.
20. Returned a portion of the office supplies purchased on November 2, receiving full credit for their cost, $200.
23. Paid advertising expense, $2,000.

Enter the following transactions on Page 19 of the two-column journal.

27. Discovered an error in computing a commission; received cash from the salesperson for the overpayment, $1,000.
28. Paid automobile expense (including rental charges for an automobile), $1,500.
29. Paid miscellaneous expenses, $450.
30. Recorded revenue earned and billed to clients during the month, $30,000.
30. Paid salaries and commissions for the month, $7,500.
30. Withdrew cash for personal use, $1,000.
30. Rented land purchased on November 15 to local merchants association for use as a parking lot in December and January, during a street rebuilding program; received advance payment of $3,000.

Instructions

1. Record the November 1, 2010, balance of each account in the appropriate balance column of a four-column account, write *Balance* in the item section, and place a check mark (✓) in the Posting Reference column.
2. Journalize the transactions for November in a two-column journal beginning on Page 18. Journal entry explanations may be omitted.
3. Post to the ledger, extending the account balance to the appropriate balance column after each posting.
4. Prepare an unadjusted trial balance of the ledger as of November 30, 2012.
5. Assume that the November 30 transaction for salaries and commissions should have been $5,700. (a) Why did the unadjusted trial balance in (4) balance? (b) Journalize the correcting entry. (c) Is this error a transposition or slide?

OBJ. 4

✔ 7. Total of Debit column: $43,338.10

PR 2-5A Errors in trial balance

If the working papers correlating with this textbook are not used, omit Problem 2-5A.

The following records of A-Aall Electronic Repair are presented in the working papers:

- Journal containing entries for the period May 1–31.
- Ledger to which the May entries have been posted.
- Preliminary trial balance as of May 31, which does not balance.

Locate the errors, supply the information requested, and prepare a corrected trial balance according to the following instructions. The balances recorded in the accounts as of May 1 and the entries in the journal are correctly stated. If it is necessary to correct any posted amounts in the ledger, a line should be drawn through the erroneous figure and the correct amount inserted above. Corrections or notations may be inserted on the preliminary trial balance in any manner desired. It is not necessary to complete all of the instructions if equal trial balance totals can be obtained earlier. However, the requirements of instructions (6) and (7) should be completed in any event.

Instructions

1. Verify the totals of the preliminary trial balance, inserting the correct amounts in the schedule provided in the working papers.

(Continued)

2. Compute the difference between the trial balance totals.
3. Compare the listings in the trial balance with the balances appearing in the ledger, and list the errors in the space provided in the working papers.
4. Verify the accuracy of the balance of each account in the ledger, and list the errors in the space provided in the working papers.
5. Trace the postings in the ledger back to the journal, using small check marks to identify items traced. Correct any amounts in the ledger that may be necessitated by errors in posting, and list the errors in the space provided in the working papers.
6. Journalize as of May 31 the payment of $100 for advertising expense. The bill had been paid on May 31 but was inadvertently omitted from the journal. Post to the ledger. (Revise any amounts necessitated by posting this entry.)
7. Prepare a new unadjusted trial balance.

OBJ. 4

✓ 1. Total of Debit column: $1,400,000

PR 2-6A Corrected trial balance

Imperial Carpet has the following unadjusted trial balance as of March 31, 2012.

Imperial Carpet
Unadjusted Trial Balance
March 31, 2012

	Debit Balances	Credit Balances
Cash	38,200	
Accounts Receivable	81,000	
Supplies	16,690	
Prepaid Insurance	3,600	
Equipment	392,000	
Notes Payable		200,000
Accounts Payable		54,000
Leonardo Pepin, Capital		254,300
Leonardo Pepin, Drawing	116,000	
Fees Earned		858,900
Wages Expense	490,000	
Rent Expense	112,600	
Advertising Expense	50,400	
Miscellaneous Expense	10,200	
	1,310,690	508,300

The debit and credit totals are not equal as a result of the following errors:

a. The balance of cash was understated by $12,000.

b. A cash receipt of $13,900 was posted as a debit to Cash of $19,300.

c. A debit of $15,000 to Accounts Receivable was not posted.

d. A return of $90 of defective supplies was erroneously posted as a $900 credit to Supplies.

e. An insurance policy acquired at a cost of $2,500 was posted as a credit to Prepaid Insurance.

f. The balance of Notes Payable was understated by $35,200.

g. A credit of $7,600 in Accounts Payable was overlooked when determining the balance of the account.

h. A debit of $10,000 for a withdrawal by the owner was posted as a credit to Leonardo Pepin, Capital.

i. The balance of $116,200 in Rent Expense was entered as $112,600 in the trial balance.

j. Gas, Electricity, and Water Expense, with a balance of $48,300 was omitted from the trial balance.

Instructions

1. Prepare a corrected unadjusted trial balance as of March 31, 2012.
2. Does the fact that the unadjusted trial balance in (1) is balanced mean that there are no errors in the accounts? Explain.

Problems Series B

OBJ. 1,2,3

✔ 3. Total of Debit column: $74,700

PR 2-1B Entries into T accounts and trial balance

April Layton, an architect, opened an office on June 1, 2012. During the month, she completed the following transactions connected with her professional practice:

a. Transferred cash from a personal bank account to an account to be used for the business, $25,000.

b. Purchased used automobile for $24,000, paying $5,000 cash and giving a note payable for the remainder.

c. Paid June rent for office and workroom, $2,000.

d. Paid cash for supplies, $1,450.

e. Purchased office and computer equipment on account, $8,000.

f. Paid cash for annual insurance policies on automobile and equipment, $3,600.

g. Received cash from a client for plans delivered, $10,500.

h. Paid cash to creditors on account, $1,750.

i. Paid cash for miscellaneous expenses, $600.

j. Received invoice for blueprint service, due in July, $1,500.

k. Recorded fee earned on plans delivered, payment to be received in July, $12,800.

l. Paid salary of assistant, $1,600.

m. Paid cash for miscellaneous expenses, $200.

n. Paid installment due on note payable, $350.

o. Paid gas, oil, and repairs on automobile for June, $550.

Instructions

1. Record the above transactions directly in the following T accounts, without journalizing: Cash; Accounts Receivable; Supplies; Prepaid Insurance; Automobiles; Equipment; Notes Payable; Accounts Payable; April Layton, Capital; Professional Fees; Rent Expense; Salary Expense; Blueprint Expense; Automobile Expense; Miscellaneous Expense. To the left of each amount entered in the accounts, place the appropriate letter to identify the transaction.
2. Determine account balances of the T accounts. Accounts containing a single entry only (such as Prepaid Insurance) do not need a balance.
3. Prepare an unadjusted trial balance for April Layton, Architect, as of June 30, 2012.
4. Determine the net income or net loss for June.

OBJ. 1,2,3,4

✔ 4. c. $5,500

PR 2-2B Journal entries and trial balance

On March 1, 2012, Mitch Quade established Marine Realty, which completed the following transactions during the month:

a. Mitch Quade transferred cash from a personal bank account to an account to be used for the business, $18,000.

b. Purchased supplies on account, $1,200.

c. Earned sales commissions, receiving cash, $14,000.

d. Paid rent on office and equipment for the month, $3,000.

e. Paid creditor on account, $750.

f. Withdrew cash for personal use, $2,000.

g. Paid automobile expenses (including rental charge) for month, $1,500, and miscellaneous expenses, $400.

h. Paid office salaries, $2,800.

i. Determined that the cost of supplies used was $800.

Instructions

1. Journalize entries for transactions (a) through (i), using the following account titles: Cash; Supplies; Accounts Payable; Mitch Quade, Capital; Mitch Quade, Drawing; Sales Commissions; Rent Expense; Office Salaries Expense; Automobile Expense; Supplies Expense; Miscellaneous Expense. Journal entry explanations may be omitted.

(Continued)

2. Prepare T accounts, using the account titles in (1). Post the journal entries to these accounts, placing the appropriate letter to the left of each amount to identify the transactions. Determine the account balances, after all posting is complete. Accounts containing only a single entry do not need a balance.
3. Prepare an unadjusted trial balance as of March 31, 2012.
4. Determine the following:
   a. Amount of total revenue recorded in the ledger.
   b. Amount of total expenses recorded in the ledger.
   c. Amount of net income for March.
5. Determine the increase or decrease in owner's equity for March.

OBJ. 1,2,3,4

✓ 3. Total of Credit column: $64,500

PR 2-3B Journal entries and trial balance

On July 1, 2012, Kim Wheeler established an interior decorating business, Aztec Designs. During the month, Kim completed the following transactions related to the business:

July 1. Kim transferred cash from a personal bank account to an account to be used for the business, $21,000.
4. Paid rent for period of July 4 to end of month, $2,750.
10. Purchased a used truck for $18,000, paying $4,000 cash and giving a note payable for the remainder.
13. Purchased equipment on account, $9,000.
14. Purchased supplies for cash, $1,500.
15. Paid annual premiums on property and casualty insurance, $3,600.
15. Received cash for job completed, $12,000.

Enter the following transactions on Page 2 of the two-column journal.

21. Paid creditor a portion of the amount owed for equipment purchased on July 13, $2,000.
24. Recorded jobs completed on account and sent invoices to customers, $9,800.
26. Received an invoice for truck expenses, to be paid in August, $700.
27. Paid utilities expense, $1,000.
27. Paid miscellaneous expenses, $300.
29. Received cash from customers on account, $4,600.
30. Paid wages of employees, $2,800.
31. Withdrew cash for personal use, $2,500.

Instructions

1. Journalize each transaction in a two-column journal beginning on Page 1, referring to the following chart of accounts in selecting the accounts to be debited and credited. (Do not insert the account numbers in the journal at this time.) Journal entry explanations may be omitted.

11	Cash	31	Kim Wheeler, Capital
12	Accounts Receivable	32	Kim Wheeler, Drawing
13	Supplies	41	Fees Earned
14	Prepaid Insurance	51	Wages Expense
16	Equipment	53	Rent Expense
18	Truck	54	Utilities Expense
21	Notes Payable	55	Truck Expense
22	Accounts Payable	59	Miscellaneous Expense

2. Post the journal to a ledger of four-column accounts, inserting appropriate posting references as each item is posted. Extend the balances to the appropriate balance columns after each transaction is posted.
3. Prepare an unadjusted trial balance for Aztec Designs as of July 31, 2012.
4. Determine the excess of revenues over expenses for July.
5. Can you think of any reason why the amount determined in (4) might not be the net income for July?

OBJ. 1,2,3,4

✔ 4. Total of Debit column: $575,400

PR 2-4B Journal entries and trial balance

Prime Time Realty acts as an agent in buying, selling, renting, and managing real estate. The unadjusted trial balance on July 31, 2012, is shown below.

Prime Time Realty
Unadjusted Trial Balance
July 31, 2012

		Debit Balances	Credit Balances
11	Cash	30,000	
12	Accounts Receivable	57,200	
13	Prepaid Insurance	7,200	
14	Office Supplies	1,600	
16	Land	—	
21	Accounts Payable		12,000
22	Unearned Rent		—
23	Notes Payable		—
31	Sandy Ulrich, Capital		50,000
32	Sandy Ulrich, Drawing	25,600	
41	Fees Earned		338,000
51	Salary and Commission Expense	220,000	
52	Rent Expense	28,000	
53	Advertising Expense	18,400	
54	Automobile Expense	9,000	
59	Miscellaneous Expense	3,000	
		400,000	400,000

The following business transactions were completed by Prime Time Realty during August 2012:

Aug. 1. Purchased office supplies on account, $1,800.
2. Paid rent on office for month, $5,000.
3. Received cash from clients on account, $40,000.
5. Paid annual insurance premiums, $6,000.
9. Returned a portion of the office supplies purchased on August 1, receiving full credit for their cost, $400.
17. Paid advertising expense, $5,500.
23. Paid creditors on account, $7,000

Enter the following transactions on Page 19 of the two-column journal.

29. Paid miscellaneous expenses, $500.
30. Paid automobile expense (including rental charges for an automobile), $2,500.
31. Discovered an error in computing a commission; received cash from the salesperson for the overpayment, $8,000.
31. Paid salaries and commissions for the month, $18,000.
31. Recorded revenue earned and billed to clients during the month, $112,000.
31. Purchased land for a future building site for $75,000, paying $10,000 in cash and giving a note payable for the remainder.
31. Withdrew cash for personal use, $12,000.
31. Rented land purchased on August 31 to a local university for use as a parking lot during football season (September, October, and November); received advance payment of $4,000.

Instructions

1. Record the August 1 balance of each account in the appropriate balance column of a four-column account, write *Balance* in the item section, and place a check mark (✓) in the Posting Reference column.
2. Journalize the transactions for August in a two-column journal beginning on Page 18. Journal entry explanations may be omitted.
3. Post to the ledger, extending the account balance to the appropriate balance column after each posting.

(Continued)

4. Prepare an unadjusted trial balance of the ledger as of August 31, 2012.
5. Assume that the August 31 transaction for Sandy Ulrich's cash withdrawal should have been $1,200. (a) Why did the unadjusted trial balance in (4) balance? (b) Journalize the correcting entry. (c) Is this error a transposition or slide?

OBJ. 4

✔ 7. Total of Credit column: $43,338.10

PR 2-5B Errors in trial balance

If the working papers correlating with this textbook are not used, omit Problem 2-5B.

The following records of A-Aall Electronic Repair are presented in the working papers:

- Journal containing entries for the period May 1–31.
- Ledger to which the May entries have been posted.
- Preliminary trial balance as of May 31, which does not balance.

Locate the errors, supply the information requested, and prepare a corrected trial balance according to the following instructions. The balances recorded in the accounts as of May 1 and the entries in the journal are correctly stated. If it is necessary to correct any posted amounts in the ledger, a line should be drawn through the erroneous figure and the correct amount inserted above. Corrections or notations may be inserted on the preliminary trial balance in any manner desired. It is not necessary to complete all of the instructions if equal trial balance totals can be obtained earlier. However, the requirements of instructions (6) and (7) should be completed in any event.

Instructions

1. Verify the totals of the preliminary trial balance, inserting the correct amounts in the schedule provided in the working papers.
2. Compute the difference between the trial balance totals.
3. Compare the listings in the trial balance with the balances appearing in the ledger, and list the errors in the space provided in the working papers.
4. Verify the accuracy of the balance of each account in the ledger, and list the errors in the space provided in the working papers.
5. Trace the postings in the ledger back to the journal, using small check marks to identify items traced. Correct any amounts in the ledger that may be necessitated by errors in posting, and list the errors in the space provided in the working papers.
6. Journalize as of May 31 the payment of $275 for gas and electricity. The bill had been paid on May 31 but was inadvertently omitted from the journal. Post to the ledger. (Revise any amounts necessitated by posting this entry.)
7. Prepare a new unadjusted trial balance.

OBJ. 4

✔ 1. Total of Debit column: $285,000

PR 2-6B Corrected trial balance

Elite Video has the following unadjusted trial balance as of October 31, 2012.

Elite Video
Unadjusted Trial Balance
October 31, 2012

	Debit Balances	Credit Balances
Cash	11,100	
Accounts Receivable	17,560	
Supplies	2,520	
Prepaid Insurance	1,840	
Equipment	64,800	
Notes Payable		31,600
Accounts Payable		6,160
Aimee Desanti, Capital		39,140
Aimee Desanti, Drawing	11,600	
Fees Earned		213,600
Wages Expense	122,400	
Rent Expense	25,020	
Advertising Expense	13,140	
Gas, Electricity, and Water Expense	6,800	
	276,780	290,500

The debit and credit totals are not equal as a result of the following errors:

a. The balance of cash was overstated by $7,500.

b. A cash receipt of $7,200 was posted as a debit to Cash of $2,700.

c. A debit of $5,000 to Accounts Receivable was not posted.

d. A return of $350 of defective supplies was erroneously posted as a $530 credit to Supplies.

e. An insurance policy acquired at a cost of $1,000 was posted as a credit to Prepaid Insurance.

f. The balance of Notes Payable was overstated by $10,000.

g. A credit of $500 in Accounts Payable was overlooked when the balance of the account was determined.

h. A debit of $4,000 for a withdrawal by the owner was posted as a debit to Aimee Desanti, Capital.

i. The balance of $11,340 in Advertising Expense was entered as $13,140 in the trial balance.

j. Miscellaneous Expense, with a balance of $1,840, was omitted from the trial balance.

Instructions

1. Prepare a corrected unadjusted trial balance as of October 31 of the current year.
2. Does the fact that the unadjusted trial balance in (1) is balanced mean that there are no errors in the accounts? Explain.

Continuing Problem

✓ 4. Total of Debit column: $40,030

The transactions completed by PS Music during June 2012 were described at the end of Chapter 1. The following transactions were completed during July, the second month of the business's operations:

July 1. Pat Sharpe made an additional investment in PS Music by depositing $4,000 in PS Music's checking account.

1. Instead of continuing to share office space with a local real estate agency, Pat decided to rent office space near a local music store. Paid rent for July, $1,800.

1. Paid a premium of $2,700 for a comprehensive insurance policy covering liability, theft, and fire. The policy covers a one-year period.

2. Received $1,250 on account.

3. On behalf of PS Music, Pat signed a contract with a local radio station, WHBD, to provide guest spots for the next three months. The contract requires PS Music to provide a guest disc jockey for 80 hours per month for a monthly fee of $3,600. Any additional hours beyond 80 will be billed to WHBD at $40 per hour. In accordance with the contract, Pat received $7,200 from WHBD as an advance payment for the first two months.

3. Paid $250 on account.

4. Paid an attorney $800 for reviewing the July 3rd contract with WHBD. (Record as Miscellaneous Expense.)

5. Purchased office equipment on account from One-Stop Office Mart, $6,000.

8. Paid for a newspaper advertisement, $200.

11. Received $900 for serving as a disc jockey for a party.

13. Paid $600 to a local audio electronics store for rental of digital recording equipment.

14. Paid wages of $1,200 to receptionist and part-time assistant.

Enter the following transactions on Page 2 of the two-column journal.

16. Received $2,100 for serving as a disc jockey for a wedding reception.
18. Purchased supplies on account, $1,080.
21. Paid $620 to Upload Music for use of its current music demos in making various music sets.
22. Paid $800 to a local radio station to advertise the services of PS Music twice daily for the remainder of July.
23. Served as disc jockey for a party for $2,500. Received $750, with the remainder due August 4, 2012.
27. Paid electric bill, $760.
28. Paid wages of $1,200 to receptionist and part-time assistant.
29. Paid miscellaneous expenses, $370.
30. Served as a disc jockey for a charity ball for $1,800. Received $400, with the remainder due on August 9, 2012.
31. Received $2,800 for serving as a disc jockey for a party.
31. Paid $1,400 royalties (music expense) to National Music Clearing for use of various artists' music during July.
31. Withdrew $1,500 cash from PS Music for personal use.

PS Music's chart of accounts and the balance of accounts as of July 1, 2012 (all normal balances), are as follows:

11 Cash	$5,310	41 Fees Earned	$6,650
12 Accounts Receivable	1,250	50 Wages Expense	400
14 Supplies	170	51 Office Rent Expense	750
15 Prepaid Insurance	—	52 Equipment Rent Expense	700
17 Office Equipment	—	53 Utilities Expense	300
21 Accounts Payable	250	54 Music Expense	1,590
23 Unearned Revenue	—	55 Advertising Expense	450
31 Pat Sharpe, Capital	5,000	56 Supplies Expense	180
32 Pat Sharpe, Drawing	500	59 Miscellaneous Expense	300

Instructions

1. Enter the July 1, 2012, account balances in the appropriate balance column of a four-column account. Write *Balance* in the Item column, and place a check mark (✓) in the Posting Reference column. (*Hint:* Verify the equality of the debit and credit balances in the ledger before proceeding with the next instruction.)
2. Analyze and journalize each transaction in a two-column journal beginning on Page 1, omitting journal entry explanations.
3. Post the journal to the ledger, extending the account balance to the appropriate balance column after each posting.
4. Prepare an unadjusted trial balance as of July 31, 2012.

Cases & Projects

You can access the Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

excel
SUCCESS

SA 2-1 ImagePress—Journalize transactions

a. Open the Excel file *SA2-1,2,3_2e*. Label the Sheet1 tab ***JE***. On the worksheet page, journalize the following selected April 2011 transactions for ImagePress Printing. Omit posting references and journal entry explanations.

Apr. 1. Paid advertising expense, $460. [This has been entered for you.]
2. Paid rent for the month, $2,500.
6. Purchased office equipment on account, $9,450.
9. Paid cash for supplies, $300.
13. Paid creditor on account, $340.
16. Received cash from customers on account, $1,080.
20. Fees earned and billed to customers, $9,570.
30. Paid salaries to employees, $1,900.
30. Paid electricity bill for the month, $440.
30. Ted Wright withdrew cash for personal use, $2,400.

b. When you have completed the journal transactions, perform a "save as," replacing the entire file name with the following:

SA2-1,2,3_2e[your first name initial]_[your last name]

SA 2-2 Image Press—Post transactions

a. Open your *SA2-1,2,3_2e[your first name initial]_[your last name]* file. Label Sheet2 as ***GL*** (for general ledger). Post the journal entries for ImagePress Printing from *SA2-1* to the appropriate accounts in the ledger, worksheet ***GL***.

Insert the appropriate posting references as each item is posted. Extend the balances using spreadsheet formulas to the appropriate balance columns after each transaction is posted.

Using the following chart of accounts, placing the beginning balance in the first row of each account in the appropriate balance column.

ImagePress Printing
Unadjusted Trial Balance
March 31, 2011

Accounts		Debit Balances	Credit Balances
11	Cash	15,500	
12	Accounts Receivable	7,300	
13	Supplies	2,000	
14	Office Equipment	12,400	
21	Accounts Payable		1,300
31	Ted Wright, Capital		23,800
32	Ted Wright, Drawing	3,500	
41	Fees Earned		25,600
51	Advertising Expense	200	
52	Rent Expense	5,000	
53	Salaries Expense	3,600	
54	Utilities Expense	1,200	
		50,700	50,700

b. Save your file using the ***same file name***.

SA 2-3 Image Press—Prepare a trial balance

a. Open your *SA2-1,2,3_2e[your first name initial]_[your last name]* file. Label Sheet3 as ***UTB*** (for Unadjusted Trial Balance). Within this worksheet, use cell references to prepare an unadjusted trial balance for the April 30 balances of ImagePress Printing, from the ledger accounts of *SA2-2*.

b. Save your file using the ***same file name***.

SA 2-4 Journalize transactions

a. Open the Excel file *SA2-4,5,6_2e*. Label Sheet1 ***JE***. Journalize the following selected September 2011 transactions for Artscape in this worksheet. Omit posting references and journal entry explanations.

Sept. 1. Paid rent for the month, $1,150.
3. Paid advertising expense, $670.
8. Paid cash for supplies, $230.
11. Purchased office equipment on account, $5,200.
15. Paid creditor on account, $920.
19. Fees earned and billed to customers, $7,200.
25. Received cash from customers on account, $2,380.
30. Paid telephone bill for the month, $240.
30. Paid wages to employees, $1,450.
30. Niki Yamura withdrew cash for personal use, $1,100.

b. When you have completed the journal transactions, perform a "save as," replacing the entire file name with the following:

SA2-4,5,6_2e[your first name initial]_[your last name]

SA 2-5 Post transactions

a. Open your *SA2-1,2,3_2e[your first name initial]_[your last name]* file. Label Sheet2, ***GL***. Post the journal entries for Artscape from *SA2-4* to the appropriate accounts in the general ledger, worksheet ***GL***.

Insert the appropriate posting references as each item is posted. Extend the balances using spreadsheet formulas to the appropriate balance columns after each transaction is posted.

Use the following chart of accounts, placing the beginning balance in the first row of each account in the appropriate balance column.

Artscape
Trial Balance
August 31, 2011

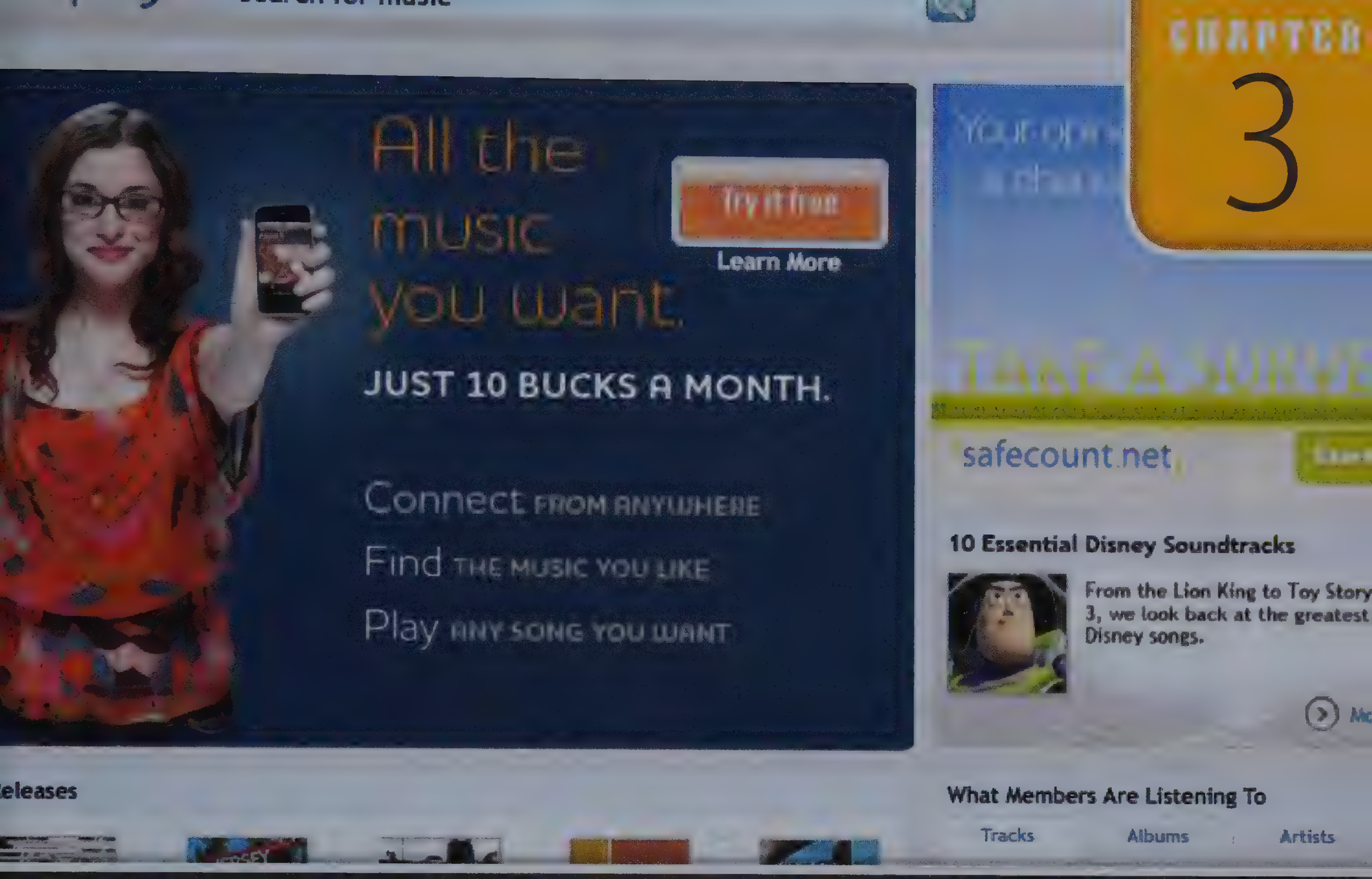
		Debit Balances	Credit Balances
11	Cash	12,700	
12	Accounts Receivable	9,100	
13	Supplies	1,500	
14	Office Equipment	11,900	
21	Accounts Payable		2,700
31	Niki Yamura, Capital		21,400
32	Niki Yamura, Drawing	3,100	
41	Fees Earned		23,100
51	Advertising Expense	300	
52	Rent Expense	4,200	
53	Utilities Expense	3,500	
54	Wages Expense	900	
		47,200	47,200

b. Save your file using the ***same file name***.

SA 2-6 Prepare a trial balance

a. Open your *SA2-1,2,3_2e[your first name initial]_[your last name]* file. Label Sheet3, ***UTB***. Use this worksheet to prepare an unadjusted trial balance for the September 30 balances of Artscape, from the ledger accounts of *SA2-5*.

b. Save your file using the ***same file name***.



psody International Inc.

CHAPTER 3

The Adjusting Process

Rhapsody

Do you subscribe to an Internet-based music service such as **Rhapsody**®? Rhapsody began by providing digital music to its subscribers through Internet audio streaming. You can subscribe to "Rhapsody Premier" for $10.00 per month and listen to music by New Boyz, Coldplay, Flo Rida, or Carrie Underwood. Rhapsody, which is partially owned by RealNetworks®, has also expanded its services to include games and video content.

When should a company such as RealNetworks record revenue from its subscriptions? Subscription revenue is recorded when it is earned. Subscriptions revenue is earned when the service has been delivered to the customer. However, in many cases cash is received before the service is delivered. For example, the subscription to "Rhapsody Premier" is paid at the beginning of the month. In this case, the cash received represents unearned revenue. As time passes and the services are delivered, the unearned revenue becomes earned and thus, becomes revenue. As a result, companies like RealNetworks must update their accounting records for items such as unearned subscriptions before preparing their financial statements. For example, RealNetworks reported in its financial statements that it had unearned (deferred) revenue of approximately $33 million as of December 31, 2009.

This chapter describes and illustrates the process by which companies update their accounting records before preparing financial statements. This discussion includes the adjustments for unearned revenues made at the end of the accounting period.

Learning Objectives

After studying this chapter, you should be able to:

		Example Exercises		*Page*
OBJ. 1	Describe the nature of the adjusting process.			
	Nature of the Adjusting Process			
	The Adjusting Process	EE 3-1		105
	Types of Accounts Requiring Adjustment	EE 3-2		109
OBJ. 2	Journalize entries for accounts requiring adjustment.			
	Adjusting Entries		excel success	
	Prepaid Expenses	EE 3-3		112
	Unearned Revenues	EE 3-4		113
	Accrued Revenues	EE 3-5		114
	Accrued Expenses	EE 3-6		116
	Depreciation Expense	EE 3-7		119
OBJ. 3	Summarize the adjustment process.			
	Summary of Adjustment Process	EE 3-8		119
OBJ. 4	Prepare an adjusted trial balance.			
	Adjusted Trial Balance	EE 3-9	excel success	126
OBJ. 5	Describe and illustrate the use of vertical analysis in evaluating a company's performance and financial condition.			
	Financial Analysis and Interpretation: Vertical Analysis	EE 3-10		128

At a Glance 3 Page 128

OBJ. 1 Describe the nature of the adjusting process.

Nature of the Adjusting Process

When preparing financial statements, the economic life of the business is divided into time periods. This **accounting period concept** requires that revenues and expenses be reported in the proper period. To determine the proper period, accountants use generally accepted accounting principles (GAAP), which requires the **accrual basis of accounting**.

Under the accrual basis of accounting, revenues are reported on the income statement in the period in which they are earned. For example, revenue is reported when the services are provided to customers. Cash may or may not be received from customers during this period. The accounting concept supporting this reporting of revenues is called the **revenue recognition concept**.

Under the accrual basis, expenses are reported in the same period as the revenues to which they relate. For example, utility expenses incurred in December are reported as an expense and matched against December's revenues even though the utility bill may not be paid until January. The accounting concept supporting reporting revenues and related expenses in the same period is called the **matching concept**, or **matching principle**. By matching revenues and expenses, net income or loss for the period is properly reported on the income statement.

American Airlines uses the accrual basis of accounting. Revenues are recognized when passengers take flights, not when the passenger makes the reservation or pays for the ticket.

Although GAAP requires the accrual basis of accounting, some businesses use the **cash basis of accounting**. Under the cash basis of accounting, revenues and expenses are reported on the income statement in the period in which cash is received or paid. For example, fees are recorded when cash is received from clients; likewise, wages are recorded when cash is paid to employees. The net income (or net loss) is the difference between the cash receipts (revenues) and the cash payments (expenses).

Small service businesses may use the cash basis, because they have few receivables and payables. For example, attorneys, physicians, and real estate agents often use the cash basis. For them, the cash basis provides financial statements similar to those of the accrual basis. For most large businesses, however, the cash basis will not provide accurate financial statements for user needs. For this reason, the accrual basis is used in this text.

The Adjusting Process

At the end of the accounting period, many of the account balances in the ledger are reported in the financial statements without change. For example, the balances of the cash and land accounts are normally the amount reported on the balance sheet.

Some accounts, however, require updating for the following reasons:[1]

1. Some expenses are not recorded daily. For example, the daily use of supplies would require many entries with small amounts. Also, the amount of supplies on hand on a day-to-day basis is normally not needed.
2. Some revenues and expenses are incurred as time passes rather than as separate transactions. For example, rent received in advance (unearned rent) expires and becomes revenue with the passage of time. Likewise, prepaid insurance expires and becomes an expense with the passage of time.
3. Some revenues and expenses may be unrecorded. For example, a company may have provided services to customers that it has not billed or recorded at the end of the accounting period. Likewise, a company may not pay its employees until the next accounting period even though the employees have earned their wages in the current period.

The analysis and updating of accounts at the end of the period before the financial statements are prepared is called the **adjusting process**. The journal entries that bring the accounts up to date at the end of the accounting period are called **adjusting entries**. All adjusting entries affect at least one income statement account and one balance sheet account. Thus, an adjusting entry will *always* involve a revenue or an expense account *and* an asset or a liability account.

Example Exercise 3-1 Accounts Requiring Adjustment

OBJ. 1

Indicate with a *Yes* or *No* whether or not each of the following accounts normally requires an adjusting entry.

a. Cash
b. Prepaid Rent
c. Wages Expense
d. Office Equipment
e. Accounts Receivable
f. Unearned Rent

Follow My Example 3-1

a. No
b. Yes
c. Yes
d. No
e. Yes
f. Yes

Practice Exercises: **PE 3-1A, PE 3-1B**

Types of Accounts Requiring Adjustment

Four basic types of accounts require adjusting entries as shown below.

1. Prepaid expenses
2. Unearned revenues
3. Accrued revenues
4. Accrued expenses

Prepaid expenses are the advance payment of *future* expenses and are recorded as assets when cash is paid. Prepaid expenses become expenses over time or during normal operations. To illustrate, the following transaction of NetSolutions from Chapter 2 is used.

Dec. 1 NetSolutions paid $2,400 as a premium on a one-year insurance policy.

On December 1, the cash payment of $2,400 was recorded as a debit to Prepaid Insurance and credit to Cash for $2,400. At the end of December, only $200 ($2,400 divided by 12 months) of the insurance premium is expired and has become an expense. The remaining $2,200 of prepaid insurance will become an expense in future months. Thus, the $200 is insurance expense of December and should be recorded with an adjusting entry.

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[1] Under the cash basis of accounting, accounts do not require adjusting. This is because transactions are recorded only when cash is received or paid. Thus, the matching concept is not used under the cash basis.

Other examples of prepaid expenses include supplies, prepaid advertising, and prepaid interest.

Exhibit 1 summarizes the nature of prepaid expenses.

EXHIBIT 1 **Prepaid Expenses**

Transaction *Cash is paid in advance for an expense.*

Analysis Advance payments of future expenses are recorded as assets when the cash is paid. The transaction is recorded as a debit to a prepaid expense account and a credit to the cash account.

Journal Entry

Prepaid Expense	XXX	
Cash		XXX
Paid an expense in advance.		

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity**

Cash	
	xxx

Prepaid Expense	
xxx	

Adjustment *An end-of-period adjustment is needed to update the prepaid expense account.*

Analysis The prepaid expense account is decreased (credited) for the amount of the prepaid expense that has expired or has been used and the related expense account is increased (debited).

Adjusting Journal Entry

Expense	XXX	
Prepaid Expense		XXX
Adjustment for prepaid expense.		

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity (Expense)**

Prepaid Expense	
	xxx

Expense	
xxx	

Unearned revenues are the advance receipt of *future* revenues and are recorded as liabilities when cash is received. Unearned revenues become earned revenues over time or during normal operations. To illustrate, the following December 1 transaction of NetSolutions is used.

Dec. 1 NetSolutions received $360 from a local retailer to rent land for three months.

On December 1, the cash receipt of $360 was recorded as a debit to Cash and a credit to Unearned Rent for $360. At the end of December, $120 ($360 divided by 3 months) of the unearned rent has been earned. The remaining $240 will become rent revenue in future months. Thus, the $120 is rent revenue of December and should be recorded with an adjusting entry.

Other examples of unearned revenues include tuition received in advance by a school, an annual retainer fee received by an attorney, premiums received in advance by an insurance company, and magazine subscriptions received in advance by a publisher.

Exhibit 2 summarizes the nature of unearned revenues.

EXHIBIT 2 Unearned Revenues

Cash is received for an unearned revenue.

Transaction

Analysis

Advance receipts for future services to be provided are recorded as liabilities when the cash is received. The transaction is recorded as a debit to the cash account and a credit to the unearned revenue account.

Journal Entry

	Cash	XXX	
	Unearned Revenue		XXX
	Received cash for unearned revenue.		

Accounting Equation Impact

Assets = Liabilities + Owner's Equity

Cash	
XXX	

Unearned Revenue	
	XXX

An end-of-period adjustment is needed to update the unearned revenue account.

Adjustment

Analysis

The unearned revenue account is decreased (debited) for the amount of the revenue that has been earned, and the related revenue account is increased (credited).

Adjusting Journal Entry

	Unearned Revenue	XXX	
	Revenue		XXX
	Adjustment for unearned revenue.		

Accounting Equation Impact

Assets = Liabilities + Owner's Equity (Revenue)

Unearned Revenue	
XXX	

Revenue	
	XXX

Accrued revenues are unrecorded revenues that have been earned and for which cash has yet to be received. Fees for services that an attorney or a doctor has provided but not yet billed are accrued revenues. To illustrate, the following example involving NetSolutions and one of its customers is used.

Dec. 15 NetSolutions signed an agreement with Dankner Co. under which NetSolutions will bill Dankner Co. on the fifteenth of each month for services rendered at the rate of $20 per hour.

From December 16–31, NetSolutions provided 25 hours of service to Dankner Co. Although the revenue of $500 (25 hours × $20) has been earned, it will not be billed until January 15. Likewise, cash of $500 will not be received until Dankner pays its bill. Thus, the $500 of accrued revenue and the $500 of fees earned should be recorded with an adjusting entry on December 31.

Other examples of accrued revenues include accrued interest on notes receivable and accrued rent on property rented to others.

Exhibit 3 summarizes the nature of accrued revenues.

EXHIBIT 3 Accrued Revenues

Transaction *Revenue has been earned, but has not been recorded.*

Analysis Revenues have been earned, but the revenue has not been recorded nor has cash been received. No journal entry has been recorded even though revenues have been earned.

Journal Entry No entry has been recorded.

Accounting Equation Impact

Assets = Liabilities + Owner's Equity

No impact since the revenue has not been recorded.

Adjustment *An end-of-period adjustment is needed to recognize accrued revenue.*

Analysis An asset account is increased (debited) for the amount of the revenue that has been earned, and the related revenue account is increased (credited). The type of receivable account that is debited depends upon the type of revenue. For example, Accounts Receivable would be debited for fees earned. Interest Receivable would be debited for interest earned.

Adjusting Journal Entry

Asset (Receivable)	XXX	
Revenue		XXX
Adjustment for accrued revenue.		

Accounting Equation Impact

Assets = Liabilities + Owner's Equity (Revenue)

_____ Receivable	
XXX	

Revenue	
	XXX

Accrued expenses are unrecorded expenses that have been incurred and for which cash has yet to be paid. Wages owed to employees at the end of a period but not yet paid are an accrued expense. To illustrate, the following example involving NetSolutions and its employees is used.

Dec. 31 NetSolutions owes its employees wages of $250 for Monday and Tuesday, December 30 and 31.

NetSolutions paid wages of $950 on December 13 and $1,200 on December 27, 2011. These payments covered the biweekly pay periods that ended on those days. As of December 31, 2011, NetSolutions owes its employees wages of $250 for Monday and Tuesday, December 30 and 31. The wages of $250 will be paid on January 10, 2012; however, they are an expense of December. Thus, $250 of accrued wages should be recorded with an adjusting entry on December 31.

Other examples of accrued expenses include accrued interest on notes payable and accrued taxes.

Exhibit 4 summarizes the nature of accrued expenses.

EXHIBIT 4 Accrued Expenses

Transaction

An expense has been incurred, but has not been recorded.

Analysis

An expense has been incurred, but the expense has not been recorded nor has cash been paid. No journal entry has been recorded even though an expense has been incurred.

Journal Entry

		No entry has been recorded.			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity**

No impact since the expense has not been recorded.

Adjustment

An end-of-period adjustment is needed to recognize the accrued expense.

Analysis

An expense account is increased (debited) for the amount of the expense that has been incurred and the related liability account is increased (credited). The liability account that is credited depends upon the type of expense. For example, Wages Payable would be credited for wages expense. Interest Payable would be credited for interest expense.

Adjusting Journal Entry

		Expense		XXX	
		Liability (Payable)			XXX
		Adjustment for accrued expense.			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity (Expense)**

______ Payable	
	XXX

Expense	
XXX	

As illustrated in Exhibit 4, accrued revenues are earned revenues that are unrecorded. The cash receipts for accrued revenues are normally received in the next accounting period. Accrued expenses are expenses that have been incurred, but are unrecorded. The cash payments for accrued expenses are normally paid in the next accounting period.

Prepaid expenses and unearned revenues are sometimes referred to as *deferrals*. This is because the recording of the related expense or revenue is deferred to a future period. Accrued revenues and accrued expenses are sometimes referred to as *accruals*. This is because the related revenue or expense should be recorded or accrued in the current period.

Example Exercise 3-2 Type of Adjustment

OBJ 1

Classify the following items as (1) prepaid expense, (2) unearned revenue, (3) accrued expense, or (4) accrued revenue.

a. Wages owed but not yet paid.
b. Supplies on hand.
c. Fees received but not yet earned.
d. Fees earned but not yet received.

Follow My Example 3-2

a. Accrued expense
b. Prepaid expense
c. Unearned revenue
d. Accrued revenue

Practice Exercises: **PE 3-2A, PE 3-2B**

OBJ. 2 Journalize entries for accounts requiring adjustment.

Adjusting Entries

To illustrate adjusting entries, the December 31, 2011, unadjusted trial balance of NetSolutions shown in Exhibit 5 is used. An expanded chart of accounts for NetSolutions is shown in Exhibit 6. The additional accounts used in this chapter are shown in color. The rules of debit and credit shown in Exhibit 3 of Chapter 2 are used to record the adjusting entries.

EXHIBIT 5

Unadusted Trial Balance for NetSolutions

NetSolutions
Unadusted Trial Balance
December 31, 2011

	Debit Balances	Credit Balances
Cash	2,065	
Accounts Receivable	2,220	
Supplies	2,000	
Prepaid Insurance	2,400	
Land	20,000	
Office Equipment	1,800	
Accounts Payable		900
Unearned Rent		360
Chris Clark, Capital		25,000
Chris Clark, Drawing	4,000	
Fees Earned		16,340
Wages Expense	4,275	
Rent Expense	1,600	
Utilities Expense	985	
Supplies Expense	800	
Miscellaneous Expense	455	
	42,600	42,600

EXHIBIT 6

Expanded Chart of Accounts for NetSolutions

Balance Sheet Accounts

1. **Assets**
   - 11 Cash
   - 12 Accounts Receivable
   - 14 Supplies
   - 15 Prepaid Insurance
   - 17 Land
   - 18 Office Equipment
   - 19 Accumulated Depreciation—Office Equipment
2. **Liabilities**
   - 21 Accounts Payable
   - 22 Wages Payable
   - 23 Unearned Rent
3. **Owner's Equity**
   - 31 Chris Clark, Capital
   - 32 Chris Clark, Drawing

Income Statement Accounts

4. **Revenue**
   - 41 Fees Earned
   - 42 Rent Revenue
5. **Expenses**
   - 51 Wages Expense
   - 52 Rent Expense
   - 53 Depreciation Expense
   - 54 Utilities Expense
   - 55 Supplies Expense
   - 56 Insurance Expense
   - 59 Miscellaneous Expense

Prepaid Expenses

Supplies The December 31, 2011, unadjusted trial balance of NetSolutions indicates a balance in the supplies account of $2,000. In addition, the prepaid insurance account has a balance of $2,400. Each of these accounts requires an adjusting entry.

The balance in NetSolutions' supplies account on December 31 is $2,000. Some of these supplies (CDs, paper, envelopes, etc.) were used during December, and some

are still on hand (not used). If either amount is known, the other can be determined. It is normally easier to determine the cost of the supplies on hand at the end of the month than to record daily supplies used.

Assuming that on December 31 the amount of supplies on hand is $760, the amount to be transferred from the asset account to the expense account is $1,240, computed as follows:

Supplies available during December (balance of account)	$2,000
Supplies on hand, December 31	760
Supplies used (amount of adjustment)	$1,240

At the end of December, the supplies expense account is increased (debited) for $1,240, and the supplies account is decreased (credited) for $1,240 to record the supplies used during December. The adjusting journal entry and T accounts for Supplies and Supplies Expense are as follows:

Journal Page 5

Date		Description	Post. Ref.	Debit	Credit
2011 Dec.	31	Supplies Expense	55	1,240	
		Supplies	14		1,240
		Supplies used ($2,000 – $760).			

Adjusting Journal Entry

Assets = Liabilities + Owner's Equity (Expense)

Supplies			**14**
Bal.	2,000	Dec. 31	1,240
Adj. Bal.	760		

Supplies Expense			**55**
Bal.	800		
Dec. 31	1,240		
Adj. Bal.	2,040		

Accounting Equation Impact

The adjusting entry is shown in color in the T accounts to separate it from other transactions. After the adjusting entry is recorded and posted, the supplies account has a debit balance of $760. This balance is an asset that will become an expense in a future period.

Prepaid Insurance The debit balance of $2,400 in NetSolutions' prepaid insurance account represents a December 1 prepayment of insurance for 12 months. At the end of December, the insurance expense account is increased (debited), and the prepaid insurance account is decreased (credited) by $200, the insurance for one month. The adjusting journal entry and T accounts for Prepaid Insurance and Insurance Expense are as follows:

	31	Insurance Expense	56	200	
		Prepaid Insurance	15		200
		Insurance expired ($2,400/12).			

Adjusting Journal Entry

Assets = Liabilities + Owner's Equity (Expense)

Prepaid Insurance			**15**
Bal.	2,400	Dec. 31	200
Adj. Bal.	2,200		

Insurance Expense			**56**
Dec. 31	200		

Accounting Equation Impact

After the adjusting entry is recorded and posted, the prepaid insurance account has a debit balance of $2,200. This balance is an asset that will become an expense in future periods. The insurance expense account has a debit balance of $200, which is an expense of the current period.

If the preceding adjustments for supplies ($1,240) and insurance ($200) are not recorded, the financial statements prepared as of December 31 will be misstated. On the income statement, Supplies Expense and Insurance Expense will be understated

by a total of $1,440 ($1,240 + $200), and net income will be overstated by $1,440. On the balance sheet, Supplies and Prepaid Insurance will be overstated by a total of $1,440. Since net income increases owner's equity, Chris Clark, Capital will also be overstated by $1,440 on the balance sheet. The effects of omitting these adjusting entries on the income statement and balance sheet are as follows:

		Amount of Misstatement	
Income Statement			
Revenues correctly stated		$ XXX	
Expenses understated by		(1,440)	
Net income overstated by	(1)	$1,440	
Balance Sheet			
Assets overstated by		$1,440	(2)
Liabilities correctly stated		$ XXX	
Owner's equity overstated by		1,440	
Total liabilities and owner's equity overstated by		$1,440	

Arrow (1) indicates the effect of the understated expenses on assets. Arrow (2) indicates the effect of the overstated net income on owner's equity.

Payments for prepaid expenses are sometimes made at the beginning of the period in which they will be *entirely used or consumed*. To illustrate, the following December 1 transaction of NetSolutions is used.

Dec. 1 NetSolutions paid rent of $800 for the month.

On December 1, the rent payment of $800 represents Prepaid Rent. However, the Prepaid Rent expires daily, and at the end of December there will be no asset left. In such cases, the payment of $800 is recorded as Rent Expense rather than as Prepaid Rent. In this way, no adjusting entry is needed at the end of the period.[2]

Example Exercise 3-3 Adjustment for Prepaid Expense

OBJ. 2

The prepaid insurance account had a beginning balance of $6,400 and was debited for $3,600 of premiums paid during the year. Journalize the adjusting entry required at the end of the year assuming the amount of unexpired insurance related to future periods is $3,250.

Follow My Example 3-3

Insurance Expense	6,750	
Prepaid Insurance		6,750
Insurance expired ($6,400 + $3,600 – $3,250).		

Practice Exercises: **PE 3-3A, PE 3-3B**

Integrity, Objectivity, and Ethics in Business

FREE ISSUE

Office supplies are often available to employees on a "free issue" basis. This means that employees do not have to "sign" for the release of office supplies but merely obtain the necessary supplies from a local storage area as needed. Just because supplies are easily available, however, doesn't mean they can be taken for personal use. There are many instances where employees have been terminated for taking supplies home for personal use.

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[2] An alternative treatment of recording the cost of supplies, rent, and other prepayments of expenses is discussed in an appendix that can be downloaded from the book's companion Web site (**www.cengage.com/accounting/reeve**).

Unearned Revenues

The December 31 unadjusted trial balance of NetSolutions indicates a balance in the unearned rent account of $360. This balance represents the receipt of three months' rent on December 1 for December, January, and February. At the end of December, one months' rent has been earned. Thus, the unearned rent account is decreased (debited) by $120, and the rent revenue account is increased (credited) by $120. The $120 represents the rental revenue for one month ($360/3). The adjusting journal entry and T accounts are shown below.

Adjusting Journal Entry

	31	Unearned Rent	23	120	
		Rent Revenue	42		120
		Rent earned ($360/3 months).			

Accounting Equation Impact

Assets = Liabilities + Owner's Equity (Revenue)

Unearned Rent			**23**
Dec. 31	120	Bal.	360
		Adj. Bal.	240

Rent Revenue			**42**
		Dec. 31	120

After the adjusting entry is recorded and posted, the unearned rent account has a credit balance of $240. This balance is a liability that will become revenue in a future period. Rent Revenue has a balance of $120, which is revenue of the current period.[3]

If the preceding adjustment of unearned rent and rent revenue is not recorded, the financial statements prepared on December 31 will be misstated. On the income statement, Rent Revenue and the net income will be understated by $120. On the balance sheet, Unearned Rent will be overstated by $120, and Chris Clark, Capital will be understated by $120. The effects of omitting this adjusting entry are shown below.

Best Buy sells extended warranty contracts with terms between 12 and 36 months. The receipts from sales of these contracts are reported as unearned revenue on Best Buy's balance sheet. Revenue is recorded as the contracts expire.

	Amount of Misstatement
Income Statement	
Revenues understated by	$ (120)
Expenses correctly stated	XXX
Net income understated by	$ (120)
Balance Sheet	
Assets correctly stated	$ XXX
Liabilities overstated by	$ 120
Owner's equity understated by	(120)
Total liabilities and owner's equity correctly stated	$ XXX

Example Exercise 3-4 Adjustment for Unearned Revenue

OBJ. 2

The balance in the unearned fees account, before adjustment at the end of the year, is $44,900. Journalize the adjusting entry required if the amount of unearned fees at the end of the year is $22,300.

Follow My Example 3-4

Unearned Fees	22,600	
Fees Earned		22,600
Fees earned ($44,900 – $22,300).		

Practice Exercises: PE 3-4A, PE 3-4B

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[3] An alternative treatment of recording revenues received in advance of their being earned is discussed in an appendix that can be downloaded from the book's companion Web site (**www.cengage.com/accounting/reeve**).

Accrued Revenues

RadioShack Corporation is engaged in consumer electronics retailing. RadioShack accrues revenue for finance charges and late payment charges related to its credit operations.

During an accounting period, some revenues are recorded only when cash is received. Thus, at the end of an accounting period, there may be revenue that has been earned *but has not been recorded*. In such cases, the revenue is recorded by increasing (debiting) an asset account and increasing (crediting) a revenue account.

To illustrate, assume that NetSolutions signed an agreement with Dankner Co. on December 15. The agreement provides that NetSolutions will answer computer questions and render assistance to Dankner Co.'s employees. The services will be billed to Dankner Co. on the fifteenth of each month at a rate of $20 per hour. As of December 31, NetSolutions had provided 25 hours of assistance to Dankner Co. The revenue of $500 (25 hours × $20) will be billed on January 15. However, NetSolutions earned the revenue in December.

The claim against the customer for payment of the $500 is an account receivable (*an asset*). Thus, the accounts receivable account is increased (debited) by $500 and the fees earned account is increased (credited) by $500. The adjusting journal entry and T accounts are shown below.

Adjusting Journal Entry

	31	Accounts Receivable	12	500	
		Fees Earned	41		500
		Accrued fees (25 hrs. × $20).			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity (Revenue)**

Accounts Receivable	12		
Bal.	2,220		
Dec. 31	500		
Adj. Bal.	2,750		

Fees Earned			41
		Bal.	16,340
		Dec. 31	500
		Adj. Bal.	16,840

If the adjustment for the accrued revenue ($500) is not recorded, Fees Earned and the net income will be understated by $500 on the income statement. On the balance sheet, Accounts Receivable and Chris Clark, Capital will be understated by $500. The effects of omitting this adjusting entry are shown below.

	Amount of Misstatement
Income Statement	
Revenues understated by	$ (500)
Expenses correctly stated	XXX
Net income understated by	$ (500)
Balance Sheet	
Assets understated by	$ (500)
Liabilities correctly stated	$ XXX
Owner's equity understated by	(500)
Total liabilities and owner's equity understated by	$ (500)

Example Exercise 3-5 Adjustment for Accrued Revenues

OBJ. 2

At the end of the current year, $13,680 of fees have been earned but have not been billed to clients. Journalize the adjusting entry to record the accrued fees.

Follow My Example 3-5

Accounts Receivable	13,680	
Fees Earned		13,680
Accrued fees.		

Practice Exercises: **PE 3-5A, PE 3-5B**

Accrued Expenses

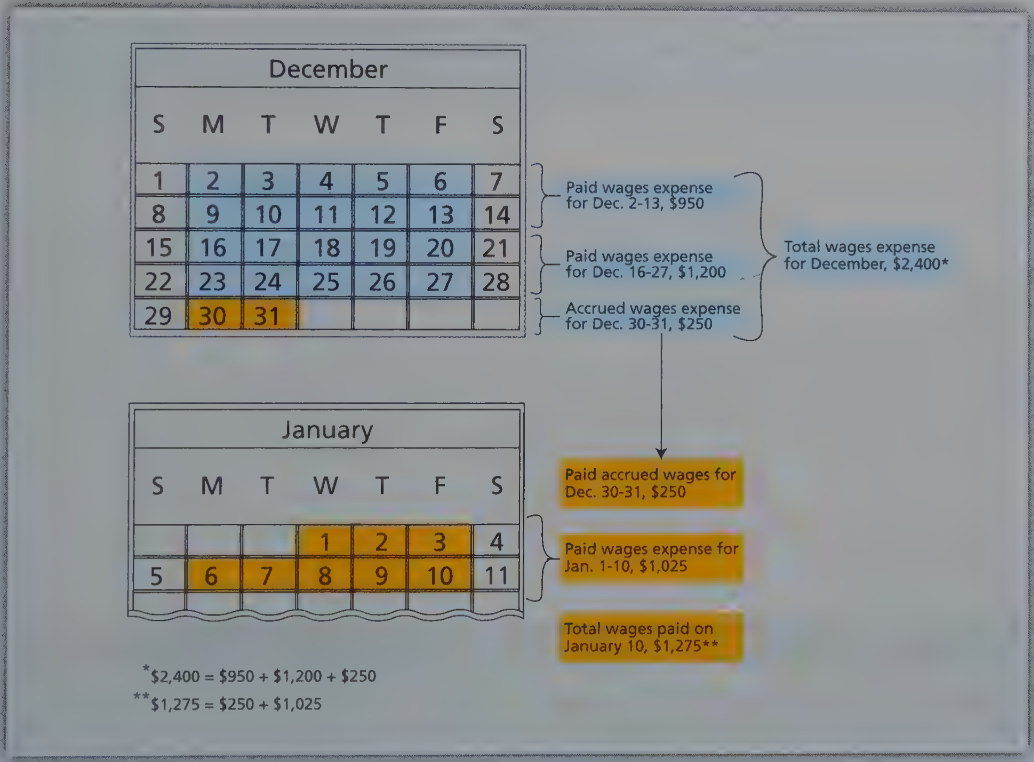
Some types of services used in earning revenues are paid for *after* the service has been performed. For example, wages expense is used hour by hour, but is paid only daily, weekly, biweekly, or monthly. At the end of the accounting period, the amount of such *accrued* but unpaid items is an expense and a liability.

For example, if the last day of the employees' pay period is not the last day of the accounting period, an accrued expense (wages expense) and the related liability (wages payable) must be recorded by an adjusting entry. This adjusting entry is necessary so that expenses are properly matched to the period in which they were incurred in earning revenue.

To illustrate, NetSolutions pays its employees biweekly. During December, NetSolutions paid wages of $950 on December 13 and $1,200 on December 27. These payments covered pay periods ending on those days as shown in Exhibit 7.

EXHIBIT 7

Accrued Wages



*$2,400 = $950 + $1,200 + $250

**$1,275 = $250 + $1,025

As of December 31, NetSolutions owes $250 of wages to employees for Monday and Tuesday, December 30 and 31. Thus, the wages expense account is increased (debited) by $250 and the wages payable account is increased (credited) by $250. The adjusting journal entry and T accounts are shown below.

Adjusting Journal Entry

	31	Wages Expense	51	250	
		Wages Payable	22		250
		Accrued wages.			

Accounting Equation Impact

Assets = **Liabilities** + **Owner's Equity (Expense)**

Wages Payable		22
	Dec. 31	250

Wages Expense		51
Bal.	4,275	
Dec. 31	250	
Adj. Bal.	4,525	

After the adjusting entry is recorded and posted, the debit balance of the wages expense account is $4,525. This balance of $4,525 is the wages expense for two months, November and December. The credit balance of $250 in Wages Payable is the liability for wages owed on December 31.

Callaway Golf Company, a manufacturer of such innovative golf clubs as the "Big Bertha" driver, reports accrued warranty expense on its balance sheet.

As shown in Exhibit 7, NetSolutions paid wages of $1,275 on January 10. This payment includes the $250 of accrued wages recorded on December 31. Thus, on January 10, the wages payable account is decreased (debited) by $250. Also, the wages expense account is increased (debited) by $1,025 ($1,275 – $250), which is the wages expense for January 1–10. Finally, the cash account is decreased (credited) by $1,275. The journal entry for the payment of wages on January 10 is shown below.[4]

Jan	10	Wages Expense	51	1,025	
		Wages Payable	22	250	
		Cash	11		1,275

If the adjustment for wages ($250) is not recorded, Wages Expense will be understated by $250, and the net income will be overstated by $250 on the income statement. On the balance sheet, Wages Payable will be understated by $250, and Chris Clark, Capital will be overstated by $250. The effects of omitting this adjusting entry are shown as follows:

	Amount of Misstatement
Income Statement	
Revenues correctly stated	$ XXX
Expenses understated by	(250)
Net income overstated by	$ 250
Balance Sheet	
Assets correctly stated	$ XXX
Liabilities understated by	$ (250)
Owner's equity overstated by	250
Total liabilities and owner's equity correctly stated	$ XXX

Example Exercise 3-6 Adjustment for Accrued Expense

Obj. 2

Sanregret Realty Co. pays weekly salaries of $12,500 on Friday for a five-day week ending on that day. Journalize the necessary adjusting entry at the end of the accounting period, assuming that the period ends on Thursday.

Follow My Example 3-6

Salaries Expense	10,000	
Salaries Payable		10,000
Accrued salaries [($12,500/5 days) × 4 days].		

Practice Exercises: **PE 3-6A, PE 3-6B**

Depreciation Expense

Fixed assets, or **plant assets**, are physical resources that are owned and used by a business and are permanent or have a long life. Examples of fixed assets include land, buildings, and equipment. In a sense, fixed assets are a type of *long-term* prepaid

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[4] To simplify the subsequent recording of the following period's transactions, some accountants use what is known as reversing entries for certain types of adjustments. Reversing entries are discussed and illustrated in Appendix B at the end of the textbook.

Business Connection

FORD MOTOR COMPANY WARRANTIES

Ford Motor Company provides warranties on the vehicles that it sells. For example, Ford offers "bumper-to-bumper" coverage in the United States for five years or 60,000 miles on its Ford brand. A bumper-to-bumper warranty normally implies that every part of a new car will be repaired or replaced if it is defective during the term of the warranty.

When Ford sells a new car, it estimates the future warranty costs that it will incur on the vehicle and accrues a warranty expense. Accruals for estimated warranty costs are based on historical warranty claim experience, which is adjusted for changes such as offering new types of vehicles. For example, Ford adjusted its warranty costs when it began selling its new fuel efficient Ford Escape Hybrid. The Ford Escape Hybrid has a gas-electric engine that automatically shuts off when the vehicle is stopped. The Escape also uses an electric motor to assist in accelerating or when the vehicle is coasting or slowing down.

Ford's warranty cost accruals (in millions) for the years ended December 31, 2009 and 2008 are as follows:

	2009	2008
Beginning balance	$ 3,346	$ 4,209
Payments during the year	(2,481)	(2,747)
Warranties issued during year	2,233	2,122
Other	121	(238)
Ending balance of accrued warranties	$ 3,219	$ 3,346

expense. However, because of their unique nature and long life, they are discussed separately from other prepaid expenses.

Fixed assets, such as office equipment, are used to generate revenue much like supplies are used to generate revenue. Unlike supplies, however, there is no visible reduction in the quantity of the equipment. Instead, as time passes, the equipment loses its ability to provide useful services. This decrease in usefulness is called **depreciation**.

All fixed assets, except land, lose their usefulness and, thus, are said to **depreciate**. As a fixed asset depreciates, a portion of its cost should be recorded as an expense. This periodic expense is called **depreciation expense**.

The adjusting entry to record depreciation expense is similar to the adjusting entry for supplies used. The depreciation expense account is increased (debited) for the amount of depreciation. However, the fixed asset account is not decreased (credited). This is because both the original cost of a fixed asset and the depreciation recorded since its purchase are reported on the balance sheet. Instead, an account entitled **Accumulated Depreciation** is increased (credited).

Accumulated depreciation accounts are called **contra accounts**, or **contra asset accounts**. This is because accumulated depreciation accounts are deducted from their related fixed asset accounts on the balance sheet. The normal balance of a contra account is opposite to the account from which it is deducted. Since the normal balance of a fixed asset account is a debit, the normal balance of an accumulated depreciation account is a credit.

Lowe's Companies, Inc., reported land, buildings, and store equipment at a cost of over $18 billion and accumulated depreciation of over $4.1 billion.

The normal titles for fixed asset accounts and their related contra asset accounts are as follows:

Fixed Asset Account	Contra Asset Account
Land	None—Land is not depreciated.
Buildings	Accumulated Depreciation—Buildings
Store Equipment	Accumulated Depreciation—Store Equipment
Office Equipment	Accumulated Depreciation—Office Equipment

The December 31, 2011, unadjusted trial balance of NetSolutions (Exhibit 5) indicates that NetSolutions owns two fixed assets: land and office equipment. Land does not depreciate; however, an adjusting entry is recorded for the depreciation of the office equipment for December. Assume that the office equipment depreciates $50 during December. The depreciation expense account is increased (debited) by $50,

and the accumulated depreciation—office equipment account is increased (credited) by $50.[5] The adjusting journal entry and T accounts are shown below.

Adjusting Journal Entry

	31	Depreciation Expense	53	50	
		Accumulated Depreciation—Office Equip.	19		50
		Depreciation on office equipment.			

Accounting Equation Impact

Assets = Liabilities + Owner's Equity (Expense)

Office Equipment	**18**
Bal. 1,800	

Accumulated Depr.—Office Equip.	**19**
	Dec. 31 50

Depreciation Expense	**53**
Dec. 31 50	

After the adjusting journal entry is recorded and posted, the office equipment account still has a debit balance of $1,800. This is the original cost of the office equipment that was purchased on December 4. The accumulated depreciation—office equipment account has a credit balance of $50. The difference between these two balances is the cost of the office equipment that has not yet been depreciated. This amount, called the **book value of the asset** (or **net book value**), is computed as shown below.

Book Value of Asset = Cost of the Asset – Accumulated Depreciation of Asset
Book Value of Office Equipment = Cost of Office Equipment – Accumulated Depre. of Office Equipment
Book Value of Office Equipment = $1,800 – $50
Book Value of Office Equipment = $1,750

The office equipment and its related accumulated depreciation are reported on the December 31, 2011, balance sheet as follows:

Office equipment	$1,800	
Less accumulated depreciation	50	$1,750

The market value of a fixed asset usually differs from its book value. This is because depreciation is an *allocation* method, not a *valuation* method. That is, depreciation allocates the cost of a fixed asset to expense over its estimated life. Depreciation does not measure changes in market values, which vary from year to year. Thus, on December 31, 2011, the market value of NetSolutions' office equipment could be more or less than $1,750.

If the adjustment for depreciation ($50) is not recorded, Depreciation Expense on the income statement will be understated by $50, and the net income will be overstated by $50. On the balance sheet, the book value of Office Equipment and Chris Clark, Capital will be overstated by $50. The effects of omitting the adjustment for depreciation are shown below.

	Amount of Misstatement
Income Statement	
Revenues correctly stated	$ XX
Expenses understated by	(50)
Net income overstated by	$ 50
Balance Sheet	
Assets overstated by	$ 50
Liabilities correctly stated	$ XX
Owner's equity overstated by	50
Total liabilities and owner's equity overstated by	$ 50

---

[5] Methods of computing depreciation expense are described and illustrated in Chapter 10.

Example Exercise 3-7 Adjustment for Depreciation

OBJ. 2

The estimated amount of depreciation on equipment for the current year is $4,250. Journalize the adjusting entry to record the depreciation.

Follow My Example 3-7

Depreciation Expense	4,250	
Accumulated Depreciation—Equipment		4,250
Depreciation on equipment.		

Practice Exercises: **PE 3-7A, PE 3-7B**

Summary of Adjustment Process

OBJ. 3 Summarize the adjustment process.

A summary of the basic types of adjusting entries is shown in Exhibit 8 on page 120.

The adjusting entries for NetSolutions are shown in Exhibit 9 on page 121. The adjusting entries are dated as of the last day of the period. However, because collecting the adjustment data requires time, the entries are usually recorded at a later date. An explanation is normally included with each adjusting entry.

NetSolutions' adjusting entries are posted to the ledger shown in Exhibit 10 on pages 122–123. The adjustments are shown in color in Exhibit 10 to distinguish them from other transactions.

Example Exercise 3-8 Effect of Omitting Adjustments

OBJ. 3

For the year ending December 31, 2012, Mann Medical Co. mistakenly omitted adjusting entries for (1) $8,600 of unearned revenue that was earned, (2) earned revenue that was not billed of $12,500, and (3) accrued wages of $2,900. Indicate the combined effect of the errors on (a) revenues, (b) expenses, and (c) net income for the year ended December 31, 2012.

Follow My Example 3-8

a. Revenues were understated by $21,100 ($8,600 + $12,500).
b. Expenses were understated by $2,900.
c. Net income was understated by $18,200 ($8,600 + $12,500 – $2,900).

Practice Exercises: **PE 3-8A, PE 3-8B**

EXHIBIT 8 **Summary of Adjustments**

Examples	Reason for Adjustment	Adjusting Entry	Examples from NetSolutions	Financial Statement Impact if Adjusting Entry Is Omitted
PREPAID EXPENSES				
Supplies, prepaid insurance	Prepaid expenses (assets) have been used or consumed in the business operations.	Expense Dr. Asset Cr.	Supplies Expense 1,240 Supplies 1,240 Insurance Expense 200 Prepaid Insurance 200	Income Statement: Revenues No effect Expenses Understated Net income Overstated Balance Sheet: Assets Overstated Liabilities No effect Owner's equity (capital) Overstated
UNEARNED REVENUES				
Unearned rent, magazine subscriptions received in advance, fees received in advance of services	Cash received before the services have been provided is recorded as a liability. Some services have been provided to customer before the end of the accounting period.	Liability Dr. Revenue Cr.	Unearned Rent 120 Rent Revenue 120	Income Statement: Revenues Understated Expenses No effect Net income Understated Balance Sheet: Assets No effect Liabilities Overstated Owner's equity (capital) Understated
ACCRUED REVENUES				
Services performed but not billed, interest to be received	**Services have been provided to the customer, but have not been billed or recorded. Interest has been earned, but has not been received or recorded.**	Asset Dr. Revenue Cr.	Accounts Receivable 500 Fees Earned 500	Income Statement: Revenues Understated Expenses No effect Net income Understated Balance Sheet: Assets Understated Liabilities No effect Owner's equity (capital) Understated
ACCRUED EXPENSES				
Wages or salaries incurred but not paid, interest incurred but not paid	Expenses have been incurred, but have not been paid or recorded.	Expense Dr. Liability Cr.	Wages Expense 250 Wages Payable 250	Income Statement: Revenues No effect Expenses Understated Net income Overstated Balance Sheet: Assets No effect Liabilities Understated Owner's equity (capital) Overstated
DEPRECIATION				
Depreciation of equipment and buildings	Fixed assets depreciate as they are used or consumed in the business operations.	Expense Dr. Contra Asset Cr.	Depreciation Expense 50 Accum. Depreciation—Office Equipment 50	Income Statement: Revenues No effect Expenses Understated Net income Overstated Balance Sheet: Assets Overstated Liabilities No effect Owner's equity (capital) Overstated

EXHIBIT 9

Adjusting Entries—NetSolutions

Journal *Page 5*

Date		Description	Post. Ref.	Debit	Credit
2011		Adjusting Entries			
Dec	31	Supplies Expense	55	1,240	
		Supplies	14		1,240
		Supplies used ($2,000 – $760).			
	31	Insurance Expense	56	200	
		Prepaid Insurance	15		200
		Insurance expired ($2,400/12 months).			
	31	Unearned Rent	23	120	
		Rent Revenue	42		120
		Rent earned ($360/3 months).			
	31	Accounts Receivable	12	500	
		Fees Earned	41		500
		Accrued fees (25 hrs. × $20).			
	31	Wages Expense	51	250	
		Wages Payable	22		250
		Accrued wages.			
	31	Depreciation Expense	53	50	
		Accum. Depreciation—Office Equipment	19		50
		Depreciation on office equipment.			

An accountant may check whether all adjustments have been made by comparing current period adjustments with those of the prior period.

Business Connection

MICROSOFT CORPORATION

Microsoft Corporation develops, manufactures, licenses, and supports a wide range of computer software products, including Windows Vista, Windows 7, Windows XP, Word, Excel, and the Xbox® gaming system. When Microsoft sells its products, it incurs an obligation to support its software with technical support and periodic updates. As a result, not all the revenue is earned on the date of sale; some of the revenue on the date of sale is unearned. The portion of revenue related to support services, such as updates and technical support, is earned as time passes and support is provided to customers. Thus, each year Microsoft makes adjusting entries transferring some of its unearned revenue to revenue. The following excerpts were taken from Microsoft's financial statements:

> The percentage of revenue recorded as unearned . . . ranges from approximately 15% to 25% of the sales price for Windows XP Home, approximately 5% to 15% of the sales price for Windows XP Professional, . . .
>
> Unearned Revenue:
>
> | | June 30, 2009 | June 30, 2008 |
> |---|---|---|
> | Unearned revenue (in millions) | $14,284 | $15,297 |

During the year ending June 30, 2010, Microsoft expects to record over $13,003 million of unearned revenue as revenue. At the same time, Microsoft will record additional unearned revenue from current period sales.

Source: Taken from Microsoft's June 30, 2009, annual report.

EXHIBIT 10 Ledger with Adjusting Entries—NetSolutions

Account *Cash* Account No. *11*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 1		1	25,000		25,000	
5		1		20,000	5,000	
18		1	7,500		12,500	
30		1		3,650	8,850	
30		1		950	7,900	
30		2		2,000	5,900	
Dec. 1		2		2,400	3,500	
1		2		800	2,700	
1		2	360		3,060	
6		2		180	2,880	
11		2		400	2,480	
13		3		950	1,530	
16		3	3,100		4,630	
20		3		900	3,730	
21		3	650		4,380	
23		3		1,450	2,930	
27		3		1,200	1,730	
31		3		310	1,420	
31		4		225	1,195	
31		4	2,870		4,065	
31		4		2,000	2,065	

Account *Accounts Receivable* Account No. *12*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 16		3	1,750		1,750	
21		3		650	1,100	
31		4	1,120		2,220	
31	Adjusting	5	500		2,720	

Account *Supplies* Account No. *14*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 10		1	1,350		1,350	
30		1		800	550	
Dec. 23		3	1,450		2,000	
31	Adjusting	5		1,240	760	

Account *Prepaid Insurance* Account No. *15*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 1		2	2,400		2,400	
31	Adjusting	5		200	2,200	

Account *Land* Account No. *17*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 5		1	20,000		20,000	

Account *Office Equipment* Account No. *18*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 4		2	1,800		1,800	

Account *Accum. Depr.—Office Equip.* Account No. *19*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 1	Adjusting	5		50		50

Account *Accounts Payable* Account No. *21*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 10		1		1,350		1,350
30		1	950			400
Dec. 4		2		1,800		2,200
11		2	400			1,800
20		3	900			900

Account *Wages Payable* Account No. *22*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 31	Adjusting	5		250		250

Account *Unearned Rent* Account No. *23*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 1		2		360		360
31	Adjusting	5	120			240

Account *Chris Clark, Capital* Account No. *31*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 1		1		25,000		25,000

EXHIBIT 10 Ledger with Adjusting Entries—NetSolutions (*Concluded*)

Account *Chris Clark, Drawing* Account No. *32*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		2	2,000		2,000	
Dec. 31		4	2,000		4,000	

Account *Fees Earned* Account No. *41*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 18		1		7,500		7,500
Dec. 16		3		3,100		10,600
16		3		1,750		12,350
31		4		2,870		15,220
31		4		1,120		16,340
31	Adjusting	5		500		16,840

Account *Rent Revenue* Account No. *42*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 31	Adjusting	5		120		120

Account *Wages Expense* Account No. *51*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	2,125		2,125	
Dec. 13		3	950		3,075	
27		3	1,200		4,275	
31	Adjusting	5	250		4,525	

Account *Rent Expense* Account No. *52*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	800		800	
Dec. 1		2	800		1,600	

Account *Depreciation Expense* Account No. *53*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 31	Adjusting	5	50		50	

Account *Utilities Expense* Account No. *54*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	450		450	
Dec. 31		3	310		760	
31		4	225		985	

Account *Supplies Expense* Account No. *55*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	800		800	
Dec. 31	Adjusting	5	1,240		2,040	

Account *Insurance Expense* Account No. *56*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 31	Adjusting	5	200		200	

Account *Miscellaneous Expense* Account No. *59*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	275		275	
Dec. 6		2	180		455	

Adjusted Trial Balance

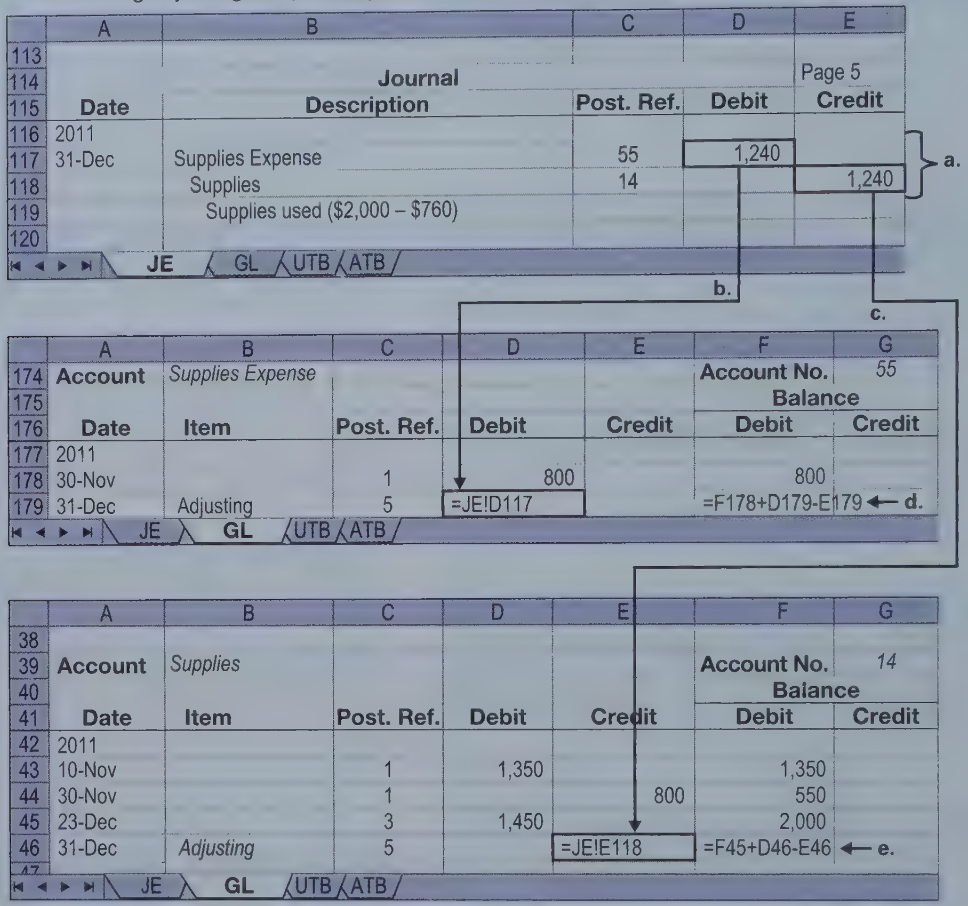
OBJ. 4 Prepare an adjusted trial balance.

After the adjusting entries are posted, an **adjusted trial balance** is prepared. The adjusted trial balance verifies the equality of the total debit and credit balances before the financial statements are prepared. If the adjusted trial balance does not balance, an error has occurred. However, as discussed in Chapter 2, errors may occur even though the adjusted trial balance totals agree. For example, if an adjusting entry were omitted, the adjusted trial balance totals would still agree.

excel success

A spreadsheet can be used to prepare adjusting entries, post adjustments to ledger accounts, and prepare an adjusted trial balance. This is illustrated for a single adjusting entry, NetSolutions' December 31 adjustment for supplies used.

a. Posting adjusting entry to ledger.



	A	B	C	D	E
113					
114		Journal			Page 5
115	Date	Description	Post. Ref.	Debit	Credit
116	2011				
117	31-Dec	Supplies Expense	55	1,240	
118		Supplies	14		1,240
119		Supplies used ($2,000 – $760)			
120					

	A	B	C	D	E	F	G
174	Account	*Supplies Expense*				Account No.	*55*
175						Balance	
176	Date	Item	Post. Ref.	Debit	Credit	Debit	Credit
177	2011						
178	30-Nov		1	800		800	
179	31-Dec	Adjusting	5	=JE!D117		=F178+D179-E179	

	A	B	C	D	E	F	G
38							
39	Account	*Supplies*				Account No.	*14*
40						Balance	
41	Date	Item	Post. Ref.	Debit	Credit	Debit	Credit
42	2011						
43	10-Nov		1	1,350		1,350	
44	30-Nov		1		800	550	
45	23-Dec		3	1,450		2,000	
46	31-Dec	*Adjusting*	5		=JE!E118	=F45+D46-E46	

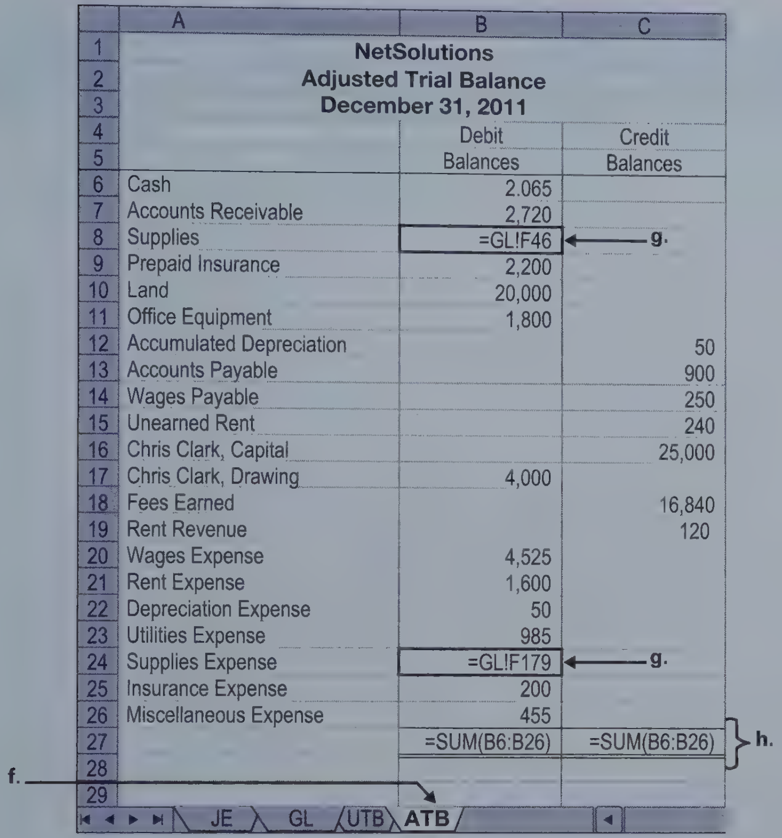
b. Enter into cell D179 (Ledger worksheet) the cell reference for the debit to *Supplies Expense* (Journal worksheet), =JE!D117

c. Enter into cell E46 (Ledger worksheet) the cell reference for the debit to *Supplies Expense* (Journal worksheet), =JE!E118

d. Copy (Ledger worksheet) the formula for the cumulative balance from cell F178 to F179. (The formula is =F178+D179-E179)

e. Copy (Ledger worksheet) the formula for the cumulative balance from cell F45 to F46. (The formula is =F45+D46-E46)

Prepare the adjusted trial balance by referencing the cell addresses from the ledger:



	A	B	C
1	NetSolutions		
2	Adjusted Trial Balance		
3	December 31, 2011		
4		Debit	Credit
5		Balances	Balances
6	Cash	2,065	
7	Accounts Receivable	2,720	
8	Supplies	=GL!F46	
9	Prepaid Insurance	2,200	
10	Land	20,000	
11	Office Equipment	1,800	
12	Accumulated Depreciation		50
13	Accounts Payable		900
14	Wages Payable		250
15	Unearned Rent		240
16	Chris Clark, Capital		25,000
17	Chris Clark, Drawing	4,000	
18	Fees Earned		16,840
19	Rent Revenue		120
20	Wages Expense	4,525	
21	Rent Expense	1,600	
22	Depreciation Expense	50	
23	Utilities Expense	985	
24	Supplies Expense	=GL!F179	
25	Insurance Expense	200	
26	Miscellaneous Expense	455	
27		=SUM(B6:B26)	=SUM(B6:B26)
28			
29			

f. Insert a new worksheet and label "ATB"for adjusted trial balance.

g. Enter into the appropriate cell the adjusted ledger account balance cell references from the Ledger worksheet. (As illustrated for *Supplies*, =GL!F46; *Supplies Expense*, =GL!F179)

h. Enter the formulas for the =SUM of the debit and credit balances for the adjusted trial balance.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Exhibit 11 shows the adjusted trial balance for NetSolutions as of December 31, 2011. Chapter 4 discusses how financial statements, including a classified balance sheet, are prepared from an adjusted trial balance.

EXHIBIT 11

Adjusted Trial Balance

NetSolutions
Adjusted Trial Balance
December 31, 2011

	Debit Balances	Credit Balances
Cash	2,065	
Accounts Receivable	2,720	
Supplies	760	
Prepaid Insurance	2,200	
Land	20,000	
Office Equipment	1,800	
Accumulated Depreciation—Office Equipment		50
Accounts Payable		900
Wages Payable		250
Unearned Rent		240
Chris Clark, Capital		25,000
Chris Clark, Drawing	4,000	
Fees Earned		16,840
Rent Revenue		120
Wages Expense	4,525	
Rent Expense	1,600	
Depreciation Expense	50	
Utilities Expense	985	
Supplies Expense	2,040	
Insurance Expense	200	
Miscellaneous Expense	455	
	43,400	43,400

Example Exercise 3-9 Effect of Errors on Adjusted Trial Balance

OBJ. 4

For each of the following errors, considered individually, indicate whether the error would cause the adjusted trial balance totals to be unequal. If the error would cause the adjusted trial balance totals to be unequal, indicate whether the debit or credit total is higher and by how much.

a. The adjustment for accrued fees of $5,340 was journalized as a debit to Accounts Payable for $5,340 and a credit to Fees Earned of $5,340.

b. The adjustment for depreciation of $3,260 was journalized as a debit to Depreciation Expense for $3,620 and a credit to Accumulated Depreciation for $3,260.

Follow My Example 3-9

a. The totals are equal even though the debit should have been to Accounts Receivable instead of Accounts Payable.

b. The totals are unequal. The debit total is higher by $360 ($3,620 – $3,260).

Practice Exercises: **PE 3-9A, PE 3-9B**

Financial Analysis and Interpretation: Vertical Analysis

OBJ. 5 Describe and illustrate the use of vertical analysis in evaluating a company's performance and financial condition.

Comparing each item in a financial statement with a total amount from the same statement is useful in analyzing relationships within the financial statement. **Vertical analysis** is the term used to describe such comparisons.

In vertical analysis of a balance sheet, each asset item is stated as a percent of the total assets. Each liability and owner's equity item is stated as a percent of total liabilities and owner's equity. In vertical analysis of an income statement, each item is stated as a percent of revenues or fees earned.

Vertical analysis is also useful for analyzing changes in financial statements over time. To illustrate, a vertical analysis of two years of income statements for J. Holmes, Attorney-at-Law, is shown below.

J. Holmes, Attorney-at-Law
Income Statements
For the Years Ended December 31, 2012 and 2011

	2012		2011	
	Amount	Percent	Amount	Percent
Fees earned	$187,500	100.0%	$150,000	100.0%
Operating expenses:				
Wages expense	$ 60,000	32.0%*	$ 45,000	30.0%**
Rent expense	15,000	8.0	12,000	8.0
Utilities expense	12,500	6.7	9,000	6.0
Supplies expense	2,700	1.4	3,000	2.0
Miscellaneous expense	2,300	1.2	1,800	1.2
Total operating expenses	$ 92,500	49.3%	$ 70,800	47.2%
Net income	$ 95,000	50.7%	$ 79,200	52.8%

*Rounded to one decimal place.
**$45,000 ÷ $150,000

The preceding vertical analysis indicates both favorable and unfavorable trends affecting the income statement of J. Holmes, Attorney-at-Law. The increase in wages expense of 2% (32.0% – 30.0%) is an unfavorable trend, as is the increase in utilities expense of 0.7% (6.7% – 6.0%). A favorable trend is the decrease in supplies expense of 0.6% (2.0% – 1.4%). Rent expense and miscellaneous expense as a percent of fees earned were constant. The net result of these trends is that net income decreased as a percent of fees earned from 52.8% to 50.7%.

The analysis of the various percentages shown for J. Holmes, Attorney-at-Law, can be enhanced by comparisons with industry averages. Such averages are published by trade associations and financial information services. Any major differences between industry averages should be investigated.

Vertical analysis of operating income taken from two years of income statements for RealNetworks is shown below.

RealNetworks
Income Statements
For the Years Ended December 31, 2009 and 2008

	2009		2008	
	Amount	Percent	Amount	Percent
Revenues	$562,264*	100.0%	$604,810	100.0%
Expenses:				
Cost of revenues	$ 222,142	39.5%	$233,244	38.6%
Selling expenses	199,148	35.4	256,135	42.3
Administrative expenses	79,164	14.1	69,981	11.6
Other expenses (net)	299,048	53.2	332,855	55.0
Total operating expenses	$799,502	142.2%	$892,215	147.5%
Operating income (loss)	$(237,238)	(42.2)%	$(287,405)	(47.5)%

*In millions

The preceding analysis indicates that RealNetworks experienced an operating loss of 42.2% of revenues in 2009. The analysis indicates that the cost of revenues

was comparable across both years. Selling expenses decreased from 42.3% to 35.4%, while administrative expenses increased from 11.6% to 14.1%. The major cause of the losses in 2009 and 2008 was due to the other expenses, which were 53.2% and 55.0% of revenues for 2009 and 2008, respectively. The cause of these other expenses should be investigated. An examination of RealNetworks' annual report indicates that a large portion of these expenses was caused by the loss in value of some of its long-term assets due to the depressed economic conditions of the last several years.

Example Exercise 3-10 Vertical Analysis

OBJ. 5

Two income statements for Fortson Company are shown below.

Fortson Company
Income Statements
For the Years Ended December 31, 2012 and 2011

	2012	2011
Fees earned	$425,000	$375,000
Operating expenses	263,500	210,000
Operating income	$161,500	$165,000

a. Prepare a vertical analysis of Fortson Company's income statements.

b. Does the vertical analysis indicate a favorable or unfavorable trend?

Follow My Example 3-10

a.

Fortson Company
Income Statements
For the Years Ended December 31, 2012 and 2011

	2012		2011	
	Amount	Percent	Amount	Percent
Fees earned	$425,000	100%	$375,000	100%
Operating expenses	263,500	62	210,000	56
Operating income	$161,500	38%	$165,000	44%

b. An unfavorable trend of increasing operating expenses and decreasing operating income is indicated.

Practice Exercises: PE 3-10A, PE 3-10B

At a Glance 3

OBJ. 1

Describe the nature of the adjusting process.

Key Points The accrual basis of accounting requires that revenues are reported in the period in which they are earned and expenses are matched with the revenues they generate. The updating of accounts at the end of the accounting period is called the adjusting process. Each adjusting entry affects an income statement and balance sheet account. The four types of accounts requiring adjusting entries are prepaid expenses, unearned revenues, accrued revenues, and accrued expenses.

Learning Outcomes	Example Exercises	Practice Exercises
• Explain why accrual accounting requires adjusting entries.		
• List accounts that do and do NOT require adjusting entries at the end of the accounting period.	EE3-1	PE3-1A, 3-1B
• Give an example of a prepaid expense, unearned revenue, accrued revenue, and accrued expense.	EE3-2	PE3-2A, 3-2B

OBJ. 2 Journalize entries for accounts requiring adjustment.

Key Points At the end of the period, adjusting entries are needed for prepaid expenses, unearned revenues, accrued revenues, and accrued expenses. In addition, an adjusting entry is necessary to record depreciation on fixed assets.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare an adjusting entry for a prepaid expense.	EE3-3	PE3-3A, 3-3B
• Prepare an adjusting entry for an unearned revenue.	EE3-4	PE3-4A, 3-4B
• Prepare an adjusting entry for an accrued revenue.	EE3-5	PE3-5A, 3-5B
• Prepare an adjusting entry for an accrued expense.	EE3-6	PE3-6A, 3-6B
• Prepare an adjusting entry for depreciation expense.	EE3-7	PE3-7A, 3-7B

OBJ. 3 Summarize the adjustment process.

Key Points A summary of adjustments, including the type of adjustment, reason for the adjustment, the adjusting entry, and the effect of omitting an adjustment on the financial statements, is shown in Exhibit 8.

Learning Outcomes	Example Exercises	Practice Exercises
• Determine the effect on the income statement and balance sheet of omitting an adjusting entry for prepaid expense, unearned revenue, accrued revenue, accrued expense, and depreciation.	EE3-8	PE3-8A, 3-8B

OBJ. 4 Prepare an adjusted trial balance.

Key Points After all the adjusting entries have been posted, the equality of the total debit balances and total credit balances is verified by an adjusted trial balance.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare an adjusted trial balance.		
• Determine the effect of errors on the equality of the adjusted trial balance.	EE3-9	PE3-9A, 3-9B

OBJ. 5 Describe and illustrate the use of vertical analysis in evaluating a company's performance and financial condition.

Key Points Comparing each item on a financial statement with a total amount from the same statement is called vertical analysis. On the balance sheet, each asset is expressed as a percent of total assets and each liability and owner's equity is expressed as a percent of total liabilities and owner's equity. On the income statement, each revenue and expense is expressed as a percent of total revenues or fees earned.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe vertical analysis.		
• Prepare a vertical analysis report of a financial statement.	EE3-10	PE3-10A, 3-10B

Key Terms

accounting period concept (104)
accrual basis of accounting (104)
accrued expenses (108)
accrued revenues (107)
Accumulated Depreciation (117)
adjusted trial balance (123)
adjusting entries (105)
adjusting process (105)
book value of the asset (or net book value) (118)
cash basis of accounting (104)
contra accounts (or contra asset accounts) (117)
depreciate (117)
depreciation (117)
depreciation expense (117)
fixed assets (or plant assets) (116)
matching concept (or matching principle) (104)
prepaid expenses (105)
revenue recognition concept (104)
unearned revenues (106)
vertical analysis (127)

Illustrative Problem

Three years ago, T. Roderick organized Harbor Realty. At July 31, 2012, the end of the current year, the unadjusted trial balance of Harbor Realty appears as shown below.

Harbor Realty
Unadjusted Trial Balance
July 31, 2012

	Debit Balances	Credit Balances
Cash	3,425	
Accounts Receivable	7,000	
Supplies	1,270	
Prepaid Insurance	620	
Office Equipment	51,650	
Accumulated Depreciation—Office Equipment		9,700
Accounts Payable		925
Wages Payable		0
Unearned Fees		1,250
T. Roderick, Capital		29,000
T. Roderick, Drawing	5,200	
Fees Earned		59,125
Wages Expense	22,415	
Depreciation Expense	0	
Rent Expense	4,200	
Utilities Expense	2,715	
Supplies Expense	0	
Insurance Expense	0	
Miscellaneous Expense	1,505	
	100,000	100,000

The data needed to determine year-end adjustments are as follows:

a. Supplies on hand at July 31, 2012, $380.
b. Insurance premiums expired during the year, $315.
c. Depreciation of equipment during the year, $4,950.
d. Wages accrued but not paid at July 31, 2012, $440.

e. Accrued fees earned but not recorded at July 31, 2012, $1,000.
f. Unearned fees on July 31, 2012, $750.

Instructions

1. Prepare the necessary adjusting journal entries. Include journal entry explanations.
2. Determine the balance of the accounts affected by the adjusting entries, and prepare an adjusted trial balance.

Solution

1.

Journal

Date		Description	Post. Ref.	Debit	Credit
2012					
July	31	Supplies Expense		890	
		Supplies			890
		Supplies used ($1,270 – $380).			
	31	Insurance Expense		315	
		Prepaid Insurance			315
		Insurance expired.			
	31	Depreciation Expense		4,950	
		Accumulated Depreciation—Office Equipment			4,950
		Depreciation expense.			
	31	Wages Expense		440	
		Wages Payable			440
		Accrued wages.			
	31	Accounts Receivable		1,000	
		Fees Earned			1,000
		Accrued fees.			
	31	Unearned Fees		500	
		Fees Earned			500
		Fees earned ($1,250 – $750).			

2.

Harbor Realty
Adjusted Trial Balance
July 31, 2012

	Debit Balances	Credit Balances
Cash	3,425	
Accounts Receivable	8,000	
Supplies	380	
Prepaid Insurance	305	
Office Equipment	51,650	
Accumulated Depreciation—Office Equipment		14,650
Accounts Payable		925
Wages Payable		440
Unearned Fees		750
T. Roderick, Capital		29,000
T. Roderick, Drawing	5,200	
Fees Earned		60,625
Wages Expense	22,855	
Depreciation Expense	4,950	
Rent Expense	4,200	
Utilities Expense	2,715	
Supplies Expense	890	
Insurance Expense	315	
Miscellaneous Expense	1,505	
	106,390	106,390

Discussion Questions

1. How are revenues and expenses reported on the income statement under (a) the cash basis of accounting and (b) the accrual basis of accounting?

2. Is the matching concept related to (a) the cash basis of accounting or (b) the accrual basis of accounting?

3. Why are adjusting entries needed at the end of an accounting period?

4. What is the difference between *adjusting entries* and *correcting entries?*

5. Identify the four different categories of adjusting entries frequently required at the end of an accounting period.

6. If the effect of the debit portion of an adjusting entry is to increase the balance of an asset account, which of the following statements describes the effect of the credit portion of the entry?
   a. Increases the balance of a revenue account.
   b. Increases the balance of an expense account.
   c. Increases the balance of a liability account.

7. If the effect of the credit portion of an adjusting entry is to increase the balance of a liability account, which of the following statements describes the effect of the debit portion of the entry?
   a. Increases the balance of a revenue account.
   b. Increases the balance of an expense account.
   c. Increases the balance of an asset account.

8. Does every adjusting entry have an effect on determining the amount of net income for a period? Explain.

9. On November 1 of the current year, a business paid the November rent on the building that it occupies. (a) Do the rights acquired at November 1 represent an asset or an expense? (b) What is the justification for debiting Rent Expense at the time of payment?

10. (a) Explain the purpose of the two accounts: Depreciation Expense and Accumulated Depreciation. (b) What is the normal balance of each account? (c) Is it customary for the balances of the two accounts to be equal in amount? (d) In what financial statements, if any, will each account appear?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 1 **EE 3-1** *p. 105*

PE 3-1A Accounts requiring adjustment

Indicate with a Yes or No whether or not each of the following accounts normally requires an adjusting entry.

a. Accumulated Depreciation
b. Albert Stucky, Drawing
c. Office Equipment
d. Salaries Payable
e. Supplies
f. Unearned Rent

OBJ. 1 **EE 3-1** *p. 105*

PE 3-1B Accounts requiring adjustment

Indicate with a Yes or No whether or not each of the following accounts normally requires an adjusting entry.

a. Building
b. Cash
c. Interest Expense
d. Miscellaneous Expense
e. Pam Ingersoll, Capital
f. Prepaid Insurance

OBJ. 1 **EE 3-2** *p. 109*

PE 3-2A Type of adjustment

Classify the following items as (1) prepaid expense, (2) unearned revenue, (3) accrued revenue, or (4) accrued expense.

a. Cash received for services not yet rendered
b. Insurance paid
c. Rent revenue earned but not received
d. Salaries owed but not yet paid

OBJ. 1 **EE 3-2** *p. 109*

PE 3-2B Type of adjustment

Classify the following items as (1) prepaid expense, (2) unearned revenue, (3) accrued revenue, or (4) accrued expense.

a. Cash received for use of land next month
b. Fees earned but not received
c. Rent expense owed but not yet paid
d. Supplies on hand

OBJ. 2 **EE 3-3** *p. 112*

PE 3-3A Adjustment for prepaid expense

The supplies account had a beginning balance of $2,400 and was debited for $3,975 for supplies purchased during the year. Journalize the adjusting entry required at the end of the year assuming the amount of supplies on hand is $1,375.

OBJ. 2 **EE 3-3** *p. 112*

PE 3-3B Adjustment for prepaid expense

The prepaid insurance account had a beginning balance of $7,200 and was debited for $4,800 of premiums paid during the year. Journalize the adjusting entry required at the end of the year assuming the amount of unexpired insurance related to future periods is $8,000.

OBJ. 2 **EE 3-4** *p. 113*

PE 3-4A Adjustment for unearned revenue

The balance in the unearned fees account, before adjustment at the end of the year, is $178,900. Journalize the adjusting entry required assuming the amount of unearned fees at the end of the year is $18,650.

OBJ. 2 **EE 3-4** *p. 113*

PE 3-4B Adjustment for unearned revenue

On August 1, 2012, Treadwell Co. received $10,500 for the rent of land for 12 months. Journalize the adjusting entry required for unearned rent on December 31, 2012.

OBJ. 2 **EE 3-5** *p. 114*

PE 3-5A Adjustment for accrued revenues

At the end of the current year, $11,600 of fees have been earned but have not been billed to clients. Journalize the adjusting entry to record the accrued fees.

Learning Objectives *Example Exercises*

OBJ. 2 **EE 3-5** *p. 114*

PE 3-5B Adjustment for accrued revenues

At the end of the current year, $21,750 of fees have been earned but have not been billed to clients. Journalize the adjusting entry to record the accrued fees.

OBJ. 2 **EE 3-6** *p. 116*

PE 3-6A Adjustment for accrued expense

Stress Free Realty Co. pays weekly salaries of $18,000 on Friday for a five-day workweek ending on that day. Journalize the necessary adjusting entry at the end of the accounting period assuming that the period ends on Thursday.

OBJ. 2 **EE 3-6** *p. 116*

PE 3-6B Adjustment for accrued expense

ABC Realty Co. pays weekly salaries of $34,500 on Monday for a six-day workweek ending the preceding Saturday. Journalize the necessary adjusting entry at the end of the accounting period assuming that the period ends on Wednesday.

OBJ. 2 **EE 3-7** *p. 119*

PE 3-7A Adjustment for depreciation

The estimated amount of depreciation on equipment for the current year is $11,500. Journalize the adjusting entry to record the depreciation.

OBJ. 2 **EE 3-7** *p. 119*

PE 3-7B Adjustment for depreciation

The estimated amount of depreciation on equipment for the current year is $3,800. Journalize the adjusting entry to record the depreciation.

OBJ. 3 **EE 3-8** *p. 119*

PE 3-8A Effect of omitting adjustments

For the year ending January 31, 2012, Balboa Medical Co. mistakenly omitted adjusting entries for (1) depreciation of $7,200, (2) fees earned that were not billed of $33,300, and (3) accrued wages of $6,000. Indicate the combined effect of the errors on (a) revenues, (b) expenses, and (c) net income for the year ended January 31, 2012.

OBJ. 3 **EE 3-8** *p. 119*

PE 3-8B Effect of omitting adjustments

For the year ending June 30, 2012, Aspen Medical Services Co. mistakenly omitted adjusting entries for (1) $2,100 of supplies that were used, (2) unearned revenue of $13,900 that was earned, and (3) insurance of $12,000 that expired. Indicate the combined effect of the errors on (a) revenues, (b) expenses, and (c) net income for the year ended June 30, 2012.

OBJ. 4 **EE 3-9** *p. 126*

PE 3-9A Effect of errors on adjusted trial balance

For each of the following errors, considered individually, indicate whether the error would cause the adjusted trial balance totals to be unequal. If the error would cause the adjusted trial balance totals to be unequal, indicate whether the debit or credit total is higher and by how much.

a. The adjustment of $17,520 for accrued fees earned was journalized as a debit to Accounts Receivable for $17,520 and a credit to Fees Earned for $17,250.

b. The adjustment of depreciation of $4,000 was omitted from the end-of-period adjusting entries.

OBJ. 4 **EE 3-9** *p. 126*

PE 3-9B Effect of errors on adjusted trial balance

For each of the following errors, considered individually, indicate whether the error would cause the adjusted trial balance totals to be unequal. If the error would cause the adjusted trial balance totals to be unequal, indicate whether the debit or credit total is higher and by how much.

a. The adjustment for accrued wages of $3,600 was journalized as a debit to Wages Expense for $3,600 and a credit to Accounts Payable for $3,600.

b. The entry for $1,480 of supplies used during the period was journalized as a debit to Supplies Expense of $1,480 and a credit to Supplies of $1,840.

Learning Objectives *Example Exercises*

OBJ. 5 **EE 3-10** *p. 128*

FAI

PE 3-10A Vertical analysis

Two income statements for Fortson Company are shown below.

Fortson Company
Income Statements
For Years Ended December 31

	2012	2011
Fees earned	$425,000	$375,000
Operating expenses	263,500	225,000
Operating income	$161,500	$150,000

a. Prepare a vertical analysis of Fortson Company's income statements.

b. Does the vertical analysis indicate a favorable or unfavorable trend?

OBJ. 5 **EE 3-10** *p. 128*

FAI

PE 3-10B Vertical analysis

Two income statements for Bradford Company are shown below.

Bradford Company
Income Statements
For Years Ended December 31

	2012	2011
Fees earned	$825,000	$700,000
Operating expenses	684,750	602,000
Operating income	$140,250	$ 98,000

a. Prepare a vertical analysis of Bradford Company's income statements.

b. Does the vertical analysis indicate a favorable or unfavorable trend?

Exercises

OBJ. 1

EX 3-1 Classifying types of adjustments

Classify the following items as (a) prepaid expense, (b) unearned revenue, (c) accrued revenue, or (d) accrued expense.

1. A three-year premium paid on a fire insurance policy.
2. Fees earned but not yet received.
3. Fees received but not yet earned.
4. Salary owed but not yet paid.
5. Subscriptions received in advance by a magazine publisher.
6. Supplies on hand.
7. Taxes owed but payable in the following period.
8. Utilities owed but not yet paid.

OBJ. 1

EX 3-2 Classifying adjusting entries

The following accounts were taken from the unadjusted trial balance of Orion Co., a congressional lobbying firm. Indicate whether or not each account would normally require an adjusting entry. If the account normally requires an adjusting entry, use the following notation to indicate the type of adjustment:

AE—Accrued Expense
AR—Accrued Revenue
PE—Prepaid Expense
UR—Unearned Revenue

To illustrate, the answer for the first account is shown below.

Account	Answer
Accounts Receivable	Normally requires adjustment (AR).
Cash	
Interest Expense	
Interest Receivable	
Johann Atkins, Capital	
Land	
Office Equipment	
Prepaid Rent	
Supplies	
Unearned Fees	
Wages Expense	

OBJ. 2

EX 3-3 Adjusting entry for supplies

The balance in the supplies account, before adjustment at the end of the year, is $3,915. Journalize the adjusting entry required if the amount of supplies on hand at the end of the year is $1,750.

OBJ. 2

EX 3-4 Determining supplies purchased

The supplies and supplies expense accounts at December 31, after adjusting entries have been posted at the end of the first year of operations, are shown in the following T accounts:

Supplies			Supplies Expense		
Bal.	900		Bal.	2,750	

Determine the amount of supplies purchased during the year.

OBJ. 2, 3

EX 3-5 Effect of omitting adjusting entry

At August 31, the end of the first month of operations, the usual adjusting entry transferring prepaid insurance expired to an expense account is omitted. Which items will be incorrectly stated, because of the error, on (a) the income statement for August and (b) the balance sheet as of August 31? Also indicate whether the items in error will be overstated or understated.

OBJ. 2

EX 3-6 Adjusting entries for prepaid insurance

The balance in the prepaid insurance account, before adjustment at the end of the year, is $14,800. Journalize the adjusting entry required under each of the following *alternatives* for determining the amount of the adjustment: (a) the amount of insurance expired during the year is $11,200; (b) the amount of unexpired insurance applicable to future periods is $3,600.

OBJ. 2

EX 3-7 Adjusting entries for prepaid insurance

The prepaid insurance account had a balance of $4,800 at the beginning of the year. The account was debited for $15,000 for premiums on policies purchased during the year. Journalize the adjusting entry required at the end of the year for each of the following situations: (a) the amount of unexpired insurance applicable to future periods is $5,000; (b) the amount of insurance expired during the year is $14,800.

OBJ. 2

✓ Amount of entry: $36,000

EX 3-8 Adjusting entries for unearned fees

The balance in the unearned fees account, before adjustment at the end of the year, is $45,000. Journalize the adjusting entry required if the amount of unearned fees at the end of the year is $9,000.

OBJ. 2, 3

EX 3-9 Effect of omitting adjusting entry

At the end of October, the first month of the business year, the usual adjusting entry transferring rent earned to a revenue account from the unearned rent account was omitted. Indicate which items will be incorrectly stated, because of the error, on (a) the income statement for October and (b) the balance sheet as of October 31. Also indicate whether the items in error will be overstated or understated.

OBJ. 2

EX 3-10 Adjusting entry for accrued fees

At the end of the current year, $12,300 of fees have been earned but have not been billed to clients.

a. Journalize the adjusting entry to record the accrued fees.

b. If the cash basis rather than the accrual basis had been used, would an adjusting entry have been necessary? Explain.

OBJ. 2

EX 3-11 Adjusting entries for unearned and accrued fees

The balance in the unearned fees account, before adjustment at the end of the year, is $96,000. Of these fees, $78,500 have been earned. In addition, $23,600 of fees have been earned but have not been billed. Journalize the adjusting entries (a) to adjust the unearned fees account and (b) to record the accrued fees.

OBJ. 2, 3

EX 3-12 Effect of omitting adjusting entry

The adjusting entry for accrued fees was omitted at July 31, the end of the current year. Indicate which items will be in error, because of the omission, on (a) the income statement for the current year and (b) the balance sheet as of July 31. Also indicate whether the items in error will be overstated or understated.

OBJ. 2

✔ a. Amount of entry: $3,750

EX 3-13 Adjusting entries for accrued salaries

Torrey Realty Co. pays weekly salaries of $9,375 on Friday for a five-day workweek ending on that day. Journalize the necessary adjusting entry at the end of the accounting period assuming that the period ends (a) on Tuesday and (b) on Thursday.

OBJ. 2

EX 3-14 Determining wages paid

The wages payable and wages expense accounts at January 31, after adjusting entries have been posted at the end of the first month of operations, are shown in the following T accounts:

Wages Payable	
	Bal. 3,750

Wages Expense	
Bal. 41,250	

Determine the amount of wages paid during the month.

OBJ. 2, 3

EX 3-15 Effect of omitting adjusting entry

Accrued salaries owed to employees for December 30 and 31 are not considered in preparing the financial statements for the year ended December 31. Indicate which items will be erroneously stated, because of the error, on (a) the income statement for the year and (b) the balance sheet as of December 31. Also indicate whether the items in error will be overstated or understated.

OBJ. 2, 3

EX 3-16 Effect of omitting adjusting entry

Assume that the error in Exercise 3-15 was not corrected and that the accrued salaries were included in the first salary payment in January. Indicate which items will be erroneously stated, because of failure to correct the initial error, on (a) the income statement for the month of January and (b) the balance sheet as of January 31.

OBJ. 2

✔ b. $41,250

EX 3-17 Adjusting entries for prepaid and accrued taxes

Andular Financial Services was organized on April 1 of the current year. On April 2, Andular prepaid $9,000 to the city for taxes (license fees) for the *next* 12 months and debited the prepaid taxes account. Andular is also required to pay in January an annual tax (on property) for the *previous* calendar year. The estimated amount of the property tax for the current year (April 1 to December 31) is $34,500.

a. Journalize the two adjusting entries required to bring the accounts affected by the two taxes up to date as of December 31, the end of the current year.

b. What is the amount of tax expense for the current year?

OBJ. 2

EX 3-18 Adjustment for depreciation

The estimated amount of depreciation on equipment for the current year is $2,900. Journalize the adjusting entry to record the depreciation.

OBJ. 2

EX 3-19 Determining fixed asset's book value

The balance in the equipment account is $750,000, and the balance in the accumulated depreciation—equipment account is $425,000.

a. What is the book value of the equipment?

b. Does the balance in the accumulated depreciation account mean that the equipment's loss of value is $425,000? Explain.

OBJ. 2

EX 3-20 Book value of fixed assets

In a recent balance sheet, **Microsoft Corporation** reported *Property, Plant, and Equipment* of $15,082 million and *Accumulated Depreciation* of $7,547 million.

a. What was the book value of the fixed assets?

b. Would the book value of Microsoft Corporation's fixed assets normally approximate their fair market values?

OBJ. 2, 3

EX 3-21 Effects of errors on financial statements

For a recent period, the balance sheet for **Costco Wholesale Corporation** reported accrued expenses of $1,720 million. For the same period, Costco reported income before income taxes of $1,714 million. Assume that the adjusting entry for $1,720 million of accrued expenses was not recorded at the end of the current period. What would have been the income (loss) before income taxes?

OBJ. 2, 3

EX 3-22 Effects of errors on financial statements

For a recent year, the balance sheet for **The Campbell Soup Company** includes accrued expenses of $579 million. The income before taxes for The Campbell Soup Company for the year was $1,079 million.

a. Assume the adjusting entry for $579 million of accrued expenses was not recorded at the end of the year. By how much would income before taxes have been misstated?

b. What is the percentage of the misstatement in (a) to the reported income of $1,079 million? Round to one decimal place.

OBJ. 2, 3

✔ 1. a. Revenue understated, $18,000

EX 3-23 Effects of errors on financial statements

The accountant for Hallmark Medical Co., a medical services consulting firm, mistakenly omitted adjusting entries for (a) unearned revenue earned during the year ($18,000) and (b) accrued wages ($3,000). Indicate the effect of each error, considered individually, on the income statement for the current year ended May 31. Also indicate the effect of each error on the May 31 balance sheet. Set up a table similar to the following, and record your answers by inserting the dollar amount in the appropriate spaces. Insert a zero if the error does not affect the item.

	Error (a)		Error (b)	
	Over-stated	Under-stated	Over-stated	Under-stated
1. Revenue for the year would be	$ ____	$ ____	$ ____	$ ____
2. Expenses for the year would be	$ ____	$ ____	$ ____	$ ____
3. Net income for the year would be	$ ____	$ ____	$ ____	$ ____
4. Assets at May 31 would be	$ ____	$ ____	$ ____	$ ____
5. Liabilities at May 31 would be	$ ____	$ ____	$ ____	$ ____
6. Owner's equity at May 31 would be	$ ____	$ ____	$ ____	$ ____

OBJ. 2, 3

EX 3-24 Effects of errors on financial statements

If the net income for the current year had been $240,000 in Exercise 3-23, what would have been the correct net income if the proper adjusting entries had been made?

OBJ. 2, 3

EX 3-25 Adjusting entries for depreciation; effect of error

On December 31, a business estimates depreciation on equipment used during the first year of operations to be $14,500.

a. Journalize the adjusting entry required as of December 31.

b. If the adjusting entry in (a) were omitted, which items would be erroneously stated on (1) the income statement for the year and (2) the balance sheet as of December 31?

OBJ. 4

EX 3-26 Adjusting entries from trial balances

The unadjusted and adjusted trial balances for McWay Services Co. on August 31, 2012, are shown below.

McWay Services Co.
Trial Balance
August 31, 2012

	Unadjusted		Adjusted	
	Debit Balances	Credit Balances	Debit Balances	Credit Balances
Cash	8		8	
Accounts Receivable	19		21	
Supplies	6		5	
Prepaid Insurance	10		6	
Land	13		13	
Equipment	20		20	
Accumulated Depreciation—Equipment		4		5
Accounts Payable		13		13
Wages Payable		0		1
Chad McWay, Capital		46		46
Chad McWay, Drawing	4		4	
Fees Earned		37		39
Wages Expense	12		13	
Rent Expense	4		4	
Insurance Expense	0		4	
Utilities Expense	2		2	
Depreciation Expense	0		1	
Supplies Expense	0		1	
Miscellaneous Expense	2		2	
	100	100	104	104

Journalize the five entries that adjusted the accounts at August 31, 2012. None of the accounts were affected by more than one adjusting entry.

OBJ. 4

✔ Corrected trial balance totals, $360,950

EX 3-27 Adjusting entries from trial balances

The accountant for E-Z Laundry prepared the following unadjusted and adjusted trial balances. Assume that all balances in the unadjusted trial balance and the amounts of the adjustments are correct. Identify the errors in the accountant's adjusting entries assuming that none of the accounts were affected by more than one adjusting entry.

E-Z Laundry
Trial Balance
July 31, 2012

	Unadjusted		Adjusted	
	Debit Balances	Credit Balances	Debit Balances	Credit Balances
Cash	7,500		7,500	
Accounts Receivable	18,250		22,000	
Laundry Supplies	3,750		5,500	
Prepaid Insurance*	5,200		1,400	
Laundry Equipment	190,000		184,000	
Accumulated Depreciation—Laundry Equipment		48,000		48,000
Accounts Payable		9,600		9,600
Wages Payable				1,200
Myrna Lundy, Capital		110,300		110,300
Myrna Lundy, Drawing	28,775		28,775	
Laundry Revenue		182,100		182,100
Wages Expense	49,200		49,200	
Rent Expense	25,575		25,575	
Utilities Expense	18,500		18,500	
Depreciation Expense			6,000	
Laundry Supplies Expense			1,750	
Insurance Expense			800	
Miscellaneous Expense	3,250		3,250	
	350,000	350,000	354,250	351,200

* 3,800 of insurance expired during the year.

OBJ. 5

FAI

EX 3-28 Vertical analysis of income statement

The following data (in millions) are taken from the financial statements of Nike Inc. for the years ending May 31, 2009 and 2008:

	2009	2008
Net sales (revenues)	$19,176	$18,627
Net income	1,487	1,883

a. Determine the amount of change (in millions) and percent of change in net income for 2009. Round to one decimal place.

b. Determine the percentage relationship between net income and net sales (net income divided by net sales) for 2009 and 2008. Round to one decimal place.

c. What conclusions can you draw from your analysis?

OBJ. 5

FAI

EX 3-29 Vertical analysis of income statement

The following income statement data (in millions) for Dell Inc. and Hewlett-Packard Company (HP) were taken from their recent annual reports:

	Dell	Hewlett-Packard
Net sales	$ 61,101	$118,364
Cost of goods sold (expense)	(50,144)	(89,592)
Operating expenses	(7,767)	(17,970)
Operating income (loss)	$ 3,190	$ 10,802

a. Prepare a vertical analysis of the income statement for Dell. Round to one decimal place.

b. Prepare a vertical analysis of the income statement for HP. Round to one decimal place.

c. Based on (a) and (b), how does Dell compare to HP?

Problems Series A

OBJ. 2

PR 3-1A Adjusting entries

On October 31, 2012, the following data were accumulated to assist the accountant in preparing the adjusting entries for Dependable Realty:

a. The supplies account balance on October 31 is $3,975. The supplies on hand on October 31 are $1,050.

b. The unearned rent account balance on October 31 is $11,000, representing the receipt of an advance payment on October 1 of four months' rent from tenants.

c. Wages accrued but not paid at October 31 are $2,500.

d. Fees accrued but unbilled at October 31 are $4,900.

e. Depreciation of office equipment is $1,100.

Instructions

1. Journalize the adjusting entries required at October 31, 2012.
2. Briefly explain the difference between adjusting entries and entries that would be made to correct errors.

OBJ. 2, 3

PR 3-2A Adjusting entries

Selected account balances before adjustment for Newhouse Realty at March 31, 2012, the end of the current year, are as follows:

	Debits	Credits
Accounts Receivable	$ 80,000	
Equipment	150,000	
Accumulated Depreciation		$ 28,000
Prepaid Rent	6,000	

(Continued)

	Debits	Credits
Supplies	$ 3,000	
Wages Payable		—
Unearned Fees		$ 10,500
Fees Earned		410,000
Wages Expense	190,000	
Rent Expense	—	
Depreciation Expense	—	
Supplies Expense	—	

Data needed for year-end adjustments are as follows:

a. Unbilled fees at March 31, $13,500.

b. Supplies on hand at March 31, $950.

c. Rent expired, $4,000.

d. Depreciation of equipment during year, $1,500.

e. Unearned fees at March 31, $2,500.

f. Wages accrued but not paid at March 31, $2,200.

Instructions

1. Journalize the six adjusting entries required at March 31, based on the data presented.
2. What would be the effect on the income statement if adjustments (a) and (f) were omitted at the end of the year?
3. What would be the effect on the balance sheet if adjustments (a) and (f) were omitted at the end of the year?
4. What would be the effect on the "Net increase or decrease in cash" on the statement of cash flows if adjustments (a) and (f) were omitted at the end of the year?

OBJ. 2

PR 3-3A Adjusting entries

Econo Company, an electronics repair store, prepared the unadjusted trial balance shown below at the end of its first year of operations.

Econo Company
Unadjusted Trial Balance
April 30, 2012

	Debit Balances	Credit Balances
Cash	13,800	
Accounts Receivable	90,000	
Supplies	21,600	
Equipment	454,800	
Accounts Payable		21,000
Unearned Fees		24,000
Randy Huntsinger, Capital		312,000
Randy Huntsinger, Drawing	18,000	
Fees Earned		543,000
Wages Expense	126,000	
Rent Expense	96,000	
Utilities Expense	69,000	
Miscellaneous Expense	10,800	
	900,000	900,000

For preparing the adjusting entries, the following data were assembled:

a. Fees earned but unbilled on April 30 were $10,000.

b. Supplies on hand on April 30 were $8,150.

c. Depreciation of equipment was estimated to be $13,800 for the year.

d. The balance in unearned fees represented the April 1 receipt in advance for services to be provided. Only $19,000 of the services was provided between April 1 and April 30.

e. Unpaid wages accrued on April 30 were $1,770.

Instructions

1. Journalize the adjusting entries necessary on April 30, 2012.
2. Determine the revenues, expenses, and net income of Econo Company before the adjusting entries.
3. Determine the revenues, expense, and net income of Econo Company after the adjusting entries.
4. Determine the effect on Randy Huntsinger, Capital of the adjusting entries.

OBJ. 2, 3, 4

PR 3-4A Adjusting entries

Timken Company specializes in the repair of music equipment and is owned and operated by Secilia Timken. On April 30, 2012, the end of the current year, the accountant for Timken Company prepared the following trial balances:

Timken Company
Trial Balance
April 30, 2012

	Unadjusted		Adjusted	
	Debit Balances	Credit Balances	Debit Balances	Credit Balances
Cash	38,250		38,250	
Accounts Receivable	109,500		109,500	
Supplies	11,250		3,500	
Prepaid Insurance	14,250		2,700	
Equipment	360,450		360,450	
Accumulated Depreciation—Equipment		94,500		107,000
Automobiles	109,500		109,500	
Accumulated Depreciation—Automobiles		54,750		57,500
Accounts Payable		24,930		26,000
Salaries Payable		—		7,500
Unearned Service Fees		18,000		6,000
Secilia Timken, Capital		394,020		394,020
Secilia Timken, Drawing	75,000		75,000	
Service Fees Earned		733,800		745,800
Salary Expense	516,900		524,400	
Rent Expense	54,000		54,000	
Supplies Expense	—		7,750	
Depreciation Expense—Equipment	—		12,500	
Depreciation Expense—Automobiles	—		2,750	
Utilities Expense	12,900		13,970	
Taxes Expense	8,175		8,175	
Insurance Expense	—		11,550	
Miscellaneous Expense	9,825		9,825	
	1,320,000	1,320,000	1,343,820	1,343,820

Instructions

Journalize the seven entries that adjusted the accounts at June 30. None of the accounts were affected by more than one adjusting entry.

OBJ. 2, 3, 4

✔ 2. Total of Debit column: $819,550

PR 3-5A Adjusting entries and adjusted trial balances

Galloway Company is a small editorial services company owned and operated by Fran Briggs. On July 31, 2012, the end of the current year, Galloway Company's accounting clerk prepared the unadjusted trial balance shown on the next page.

The data needed to determine year-end adjustments are as follows:

a. Unexpired insurance at July 31, $4,800.
b. Supplies on hand at July 31, $600.
c. Depreciation of building for the year, $3,100.
d. Depreciation of equipment for the year, $2,700.
e. Rent unearned at July 31, $1,750.

f. Accrued salaries and wages at July 31, $3,000.

g. Fees earned but unbilled on July 31, $10,750.

Galloway Company
Unadjusted Trial Balance
July 31, 2012

	Debit Balances	Credit Balances
Cash	7,500	
Accounts Receivable	38,400	
Prepaid Insurance	7,200	
Supplies	1,980	
Land	112,500	
Building	200,250	
Accumulated Depreciation—Building		137,550
Equipment	135,300	
Accumulated Depreciation—Equipment		97,950
Accounts Payable		12,150
Unearned Rent		6,750
Fran Briggs, Capital		221,000
Fran Briggs, Drawing	15,000	
Fees Earned		324,600
Salaries and Wages Expense	193,370	
Utilities Expense	42,375	
Advertising Expense	22,800	
Repairs Expense	17,250	
Miscellaneous Expense	6,075	
	800,000	800,000

Instructions

1. Journalize the adjusting entries using the following additional accounts: Salaries and Wages Payable; Rent Revenue; Insurance Expense; Depreciation Expense—Building; Depreciation Expense—Equipment; and Supplies Expense.
2. Determine the balances of the accounts affected by the adjusting entries, and prepare an adjusted trial balance.

OBJ. 2, 3

✔ 2. Corrected net income: $92,300

PR 3-6A Adjusting entries and errors

At the end of June, the first month of operations, the following selected data were taken from the financial statements of Beth Cato, an attorney:

Net income for June	$ 80,000
Total assets at June 30	500,000
Total liabilities at June 30	200,000
Total owner's equity at June 30	300,000

In preparing the financial statements, adjustments for the following data were overlooked:

a. Supplies used during June, $1,500.

b. Unbilled fees earned at June 30, $18,000.

c. Depreciation of equipment for June, $3,000.

d. Accrued wages at June 30, $1,200.

Instructions

1. Journalize the entries to record the omitted adjustments.
2. Determine the correct amount of net income for June and the total assets, liabilities, and owner's equity at June 30. In addition to indicating the corrected amounts, indicate the effect of each omitted adjustment by setting up and completing a columnar table similar to the following. Adjustment (a) is presented as an example.

(Continued)

	Net Income	Total Assets =	Total Liabilities +	Total Owner's Equity
Reported amounts	$80,000	$500,000	$200,000	$300,000
Corrections:				
Adjustment (a)	−1,500	−1,500	0	−1,500
Adjustment (b)				
Adjustment (c)				
Adjustment (d)				
Corrected amounts				

Problems Series B

OBJ. 2

PR 3-1B Adjusting entries

On January 31, 2012, the following data were accumulated to assist the accountant in preparing the adjusting entries for Oceanside Realty:

a. Fees accrued but unbilled at January 31 are $10,280.

b. The supplies account balance on January 31 is $6,100. The supplies on hand at January 31 are $1,300.

c. Wages accrued but not paid at January 31 are $3,000.

d. The unearned rent account balance at January 31 is $4,500, representing the receipt of an advance payment on January 1 of three months' rent from tenants.

e. Depreciation of office equipment is $1,400.

Instructions

1. Journalize the adjusting entries required at January 31, 2012.
2. Briefly explain the difference between adjusting entries and entries that would be made to correct errors.

OBJ. 2, 3

PR 3-2B Adjusting entries

Selected account balances before adjustment for Skylight Realty at June 30, 2012, the end of the current year, are shown below.

	Debits	Credits
Accounts Receivable	$ 75,000	
Accumulated Depreciation		$ 12,000
Depreciation Expense	—	
Equipment	250,000	
Fees Earned		400,000
Prepaid Rent	12,000	
Rent Expense	—	
Supplies	3,170	
Supplies Expense	—	
Unearned Fees		10,000
Wages Expense	140,000	
Wages Payable		—

Data needed for year-end adjustments are as follows:

a. Supplies on hand at June 30, $800.

b. Depreciation of equipment during year, $750.

c. Rent expired during year, $9,000.

d. Wages accrued but not paid at June 30, $1,700.
e. Unearned fees at June 30, $6,500.
f. Unbilled fees at June 30, $15,000.

Instructions

1. Journalize the six adjusting entries required at June 30, based on the data presented.
2. What would be the effect on the income statement if adjustments (b) and (e) were omitted at the end of the year?
3. What would be the effect on the balance sheet if adjustments (b) and (e) were omitted at the end of the year?
4. What would be the effect on the "Net increase or decrease in cash" on the statement of cash flows if adjustments (b) and (e) were omitted at the end of the year?

OBJ. 2

PR 3-3B Adjusting entries

Brown Trout Outfitters Co., an outfitter store for fishing treks, prepared the following unadjusted trial balance at the end of its first year of operations:

Brown Trout Outfitters Co.
Unadjusted Trial Balance
September 30, 2012

	Debit Balances	Credit Balances
Cash	26,400	
Accounts Receivable	87,600	
Supplies	7,200	
Equipment	162,000	
Accounts Payable		12,200
Unearned Fees		19,200
Jon Wolfe, Capital		222,800
Jon Wolfe, Drawing	10,000	
Fees Earned		295,800
Wages Expense	152,800	
Rent Expense	55,000	
Utilities Expense	42,000	
Miscellaneous Expense	7,000	
	550,000	550,000

For preparing the adjusting entries, the following data were assembled:

a. Supplies on hand on September 30 were $1,850.
b. Fees earned but unbilled on September 30 were $6,500.
c. Depreciation of equipment was estimated to be $2,800 for the year.
d. Unpaid wages accrued on September 30 were $1,275.
e. The balance in unearned fees represented the September 1 receipt in advance for services to be provided. Only $3,000 of the services was provided between September 1 and September 30.

Instructions

1. Journalize the adjusting entries necessary on September 30, 2012.
2. Determine the revenues, expenses, and net income of Brown Trout Outfitters Co. before the adjusting entries.
3. Determine the revenues, expense, and net income of Brown Trout Outfitters Co. after the adjusting entries.
4. Determine the effect on Jon Wolfe, Capital of the adjusting entries.

OBJ. 2, 3, 4

PR 3-4B Adjusting entries

Goldfinch Company specializes in the maintenance and repair of signs, such as billboards. On January 31, 2012, the accountant for Goldfinch Company prepared the following trial balances:

(Continued)

Goldfinch Company
Trial Balance
January 31, 2012

	Unadjusted		Adjusted	
	Debit Balances	Credit Balances	Debit Balances	Credit Balances
Cash	4,750		4,750	
Accounts Receivable	17,400		17,400	
Supplies	6,200		1,475	
Prepaid Insurance	9,000		2,700	
Land	50,000		50,000	
Buildings	120,000		120,000	
Accumulated Depreciation—Buildings		51,500		60,000
Trucks	75,000		75,000	
Accumulated Depreciation—Trucks		12,000		13,550
Accounts Payable		6,920		8,000
Salaries Payable		—		750
Unearned Service Fees		10,500		6,000
Marsha Parlik, Capital		156,400		156,400
Marsha Parlik, Drawing	7,500		7,500	
Service Fees Earned		162,680		167,180
Salary Expense	80,000		80,750	
Depreciation Expense—Trucks	—		1,550	
Rent Expense	11,900		11,900	
Supplies Expense	—		4,725	
Utilities Expense	6,200		7,280	
Depreciation Expense—Buildings	—		8,500	
Taxes Expense	2,900		2,900	
Insurance Expense	—		6,300	
Miscellaneous Expense	9,150		9,150	
	400,000	400,000	411,880	411,880

Instructions

Journalize the seven entries that adjusted the accounts at January 31. None of the accounts were affected by more than one adjusting entry.

OBJ. 2, 3, 4

✔ 2. Total of Debit column: $340,075

PR 3-5B Adjusting entries and adjusted trial balances

Pacific Financial Services Co., which specializes in appliance repair services, is owned and operated by Eileen Hastings. Pacific Financial Services Co.'s accounting clerk prepared the unadjusted trial balance at October 31, 2012, shown below.

Pacific Financial Services Co.
Unadjusted Trial Balance
October 31, 2012

	Debit Balances	Credit Balances
Cash	10,200	
Accounts Receivable	34,750	
Prepaid Insurance	6,000	
Supplies	1,725	
Land	50,000	
Building	80,750	
Accumulated Depreciation—Building		37,850
Equipment	45,000	
Accumulated Depreciation—Equipment		17,650
Accounts Payable		3,750
Unearned Rent		3,600
Eileen Hastings, Capital		103,550
Eileen Hastings, Drawing	8,000	
Fees Earned		158,600
Salaries and Wages Expense	56,850	
Utilities Expense	14,100	
Advertising Expense	7,500	
Repairs Expense	6,100	
Miscellaneous Expense	4,025	
	325,000	325,000

The data needed to determine year-end adjustments are as follows:

a. Depreciation of building for the year, $1,900.
b. Depreciation of equipment for the year, $2,400.
c. Accrued salaries and wages at October 31, $1,375.
d. Unexpired insurance at October 31, $2,700.
e. Fees earned but unbilled on October 31, $9,400.
f. Supplies on hand at October 31, $325.
g. Rent unearned at October 31, $1,800.

Instructions

1. Journalize the adjusting entries using the following additional accounts: Salaries and Wages Payable; Rent Revenue; Insurance Expense; Depreciation Expense—Building; Depreciation Expense—Equipment; and Supplies Expense.
2. Determine the balances of the accounts affected by the adjusting entries and prepare an adjusted trial balance.

OBJ. 2, 3

✓ 2. Corrected net income: $150,500

PR 3-6B Adjusting entries and errors

At the end of March, the first month of operations, the following selected data were taken from the financial statements of Kurt Reibel, an attorney:

Net income for March	$ 150,000
Total assets at March 31	1,000,000
Total liabilities at March 31	350,000
Total owner's equity at March 31	650,000

In preparing the financial statements, adjustments for the following data were overlooked:

a. Unbilled fees earned at March 31, $15,000.
b. Depreciation of equipment for March, $9,000.
c. Accrued wages at March 31, $3,500.
d. Supplies used during March, $2,000.

Instructions

1. Journalize the entries to record the omitted adjustments.
2. Determine the correct amount of net income for March and the total assets, liabilities, and owner's equity at March 31. In addition to indicating the corrected amounts, indicate the effect of each omitted adjustment by setting up and completing a columnar table similar to the following. Adjustment (a) is presented as an example.

	Net Income	Total Assets	+	Total Liabilities	=	Total Owner's Equity
Reported amounts	$150,000	$1,000,000		$350,000		$650,000
Corrections:						
Adjustment (a)	+15,000	+15,000		0		+15,000
Adjustment (b)						
Adjustment (c)						
Adjustment (d)						
Corrected amounts						

Continuing Problem

✓ 3. Total of Debit column: $41,875

The unadjusted trial balance that you prepared for PS Music at the end of Chapter 2 should appear as shown on page 148.

PS Music
Unadjusted Trial Balance
July 31, 2012

	Debit Balances	Credit Balances
Cash	10,510	
Accounts Receivable	3,150	
Supplies	1,250	
Prepaid Insurance	2,700	
Office Equipment	6,000	
Accounts Payable		7,080
Unearned Revenue		7,200
Pat Sharpe, Capital		9,000
Pat Sharpe, Drawing	2,000	
Fees Earned		16,750
Music Expense	3,610	
Wages Expense	2,800	
Office Rent Expense	2,550	
Advertising Expense	1,450	
Equipment Rent Expense	1,300	
Utilities Expense	1,060	
Supplies Expense	180	
Miscellaneous Expense	1,470	
	40,030	40,030

The data needed to determine adjustments for the two-month period ending July 31, 2012, are as follows:

a. During July, PS Music provided guest disc jockeys for WHBD for a total of 120 hours. For information on the amount of the accrued revenue to be billed to WHBD, see the contract described in the July 3, 2012, transaction at the end of Chapter 2.

b. Supplies on hand at July 31, $400.

c. The balance of the prepaid insurance account relates to the July 1, 2012, transaction at the end of Chapter 2.

d. Depreciation of the office equipment is $75.

e. The balance of the unearned revenue account relates to the contract between PS Music and WHBD, described in the July 3, 2012, transaction at the end of Chapter 2.

f. Accrued wages as of July 31, 2012, were $170.

Instructions

1. Prepare adjusting journal entries. You will need the following additional accounts:
   18 Accumulated Depreciation—Office Equipment
   22 Wages Payable
   57 Insurance Expense
   58 Depreciation Expense
2. Post the adjusting entries, inserting balances in the accounts affected.
3. Prepare an adjusted trial balance.

Cases & Projects

You can access the Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

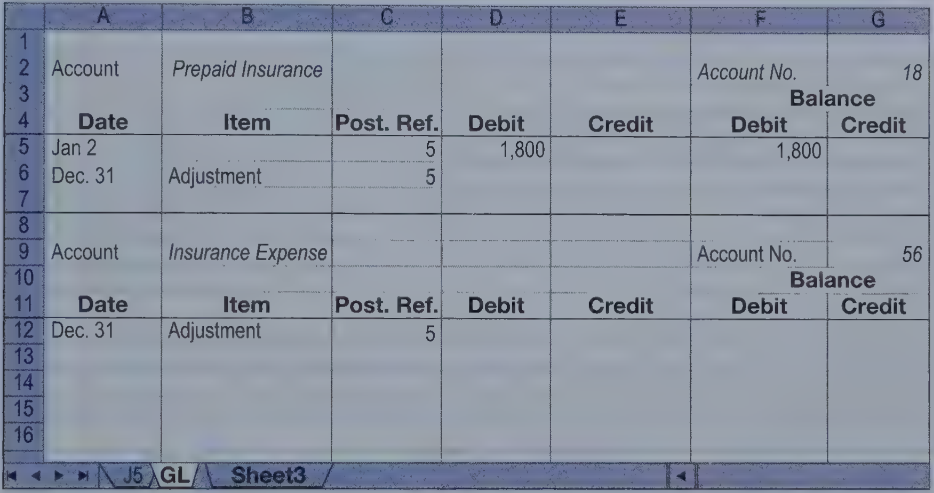
SA 3-1 Adjusting entries

Holly Company purchased a two-year insurance policy on January 2, 2012, for $1,800.

a. Open the Excel file *SA3-1_2e.*

b. Journalize in a spreadsheet the adjusting entry to record insurance expired for the year on December 31, 2012. Label the worksheet J5 to journalize the adjusting entry.

c. Post the adjusting entry to the four-column general ledger accounts in the separate worksheet.



	A	B	C	D	E	F	G
1							
2	Account	*Prepaid Insurance*				*Account No.*	*18*
3						**Balance**	
4	**Date**	**Item**	**Post. Ref.**	**Debit**	**Credit**	**Debit**	**Credit**
5	Jan 2		5	1,800		1,800	
6	Dec. 31	Adjustment	5				
7							
8							
9	Account	*Insurance Expense*				Account No.	56
10						**Balance**	
11	**Date**	**Item**	**Post. Ref.**	**Debit**	**Credit**	**Debit**	**Credit**
12	Dec. 31	Adjustment	5				
13							
14							
15							
16							

d. When you have completed the journal entry and posted to the general ledger, perform a "save as," replacing the entire file name with the following:
SA3-1_2e[your first name initial]_[your last name]

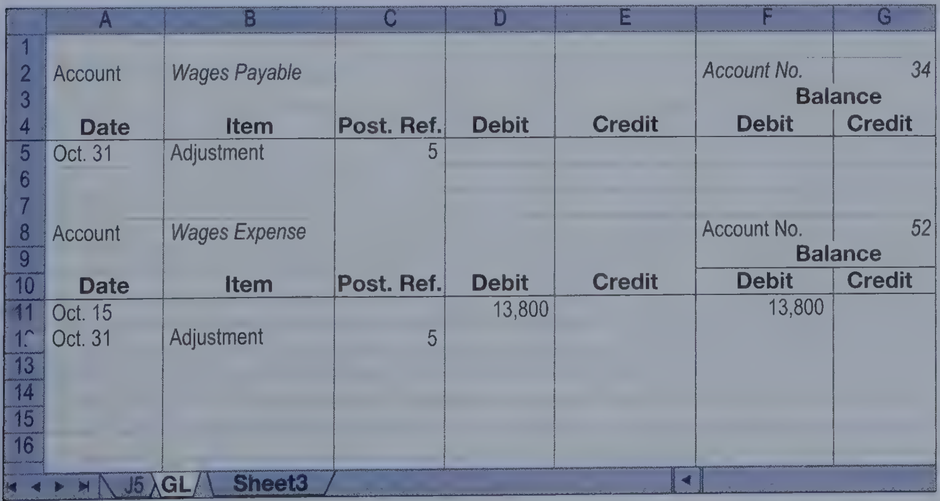
SA 3-2 Adjusting entries

The accrued wages for Darrin Company at October 31, 2013, are $14,300.

a. Open the Excel file *SA3-2_2e.*

b. Journalize in a spreadsheet the adjusting entry for accrued wages on October 31, 2013. Use a separate worksheet, J5, to journalize the adjusting entry.

c. Post the adjusting entry to the four-column general ledger accounts in the separate worksheet, *GL.*



	A	B	C	D	E	F	G
1							
2	Account	*Wages Payable*				*Account No.*	*34*
3						**Balance**	
4	**Date**	**Item**	**Post. Ref.**	**Debit**	**Credit**	**Debit**	**Credit**
5	Oct. 31	Adjustment	5				
6							
7							
8	Account	*Wages Expense*				Account No.	52
9						**Balance**	
10	**Date**	**Item**	**Post. Ref.**	**Debit**	**Credit**	**Debit**	**Credit**
11	Oct. 15			13,800		13,800	
12	Oct. 31	Adjustment	5				
13							
14							
15							
16							

d. When you have completed the journal entry and posted to the general ledger, perform a "save as," replacing the entire file name with the following:
SA3-2_2e[your first name initial]_[your last name]

---

excel success

SA 3-3 ImagePress—Adjusting entries

Open the previously saved file, *SA2-1,2,3_2e[your first name initial]_[your last name]*. (Note: This is the file saved in Chapter 2.)

ImagePress Printing (from *SA2-1,2,3*) prepared the following unadjusted trial balance for the end of ImagePress's first year of operations.

The following adjustments were assembled:

- Supplies on hand on April 30 were $600.
- Fees earned but unbilled on April 30 were $1,380.
- Depreciation of office equipment was estimated to be $4,250.
- Utility expenses accrued on April 30 were $900.

a. Journalize in the journal worksheet developed from SA2-1 for ImagePress Printing the necessary adjusting entries on April 30.

b. Post adjustments to the worksheet ledger accounts developed in SA2-2 for ImagePress Printing. Add accounts to the ledger for those adjustments requiring new accounts.

c. Prepare in a separate worksheet in the ImagePress Printing file the adjusted trial balance (labeled ATB).

d. When you have completed the adjustments, postings, and adjusted trial balance, perform a "save as," replacing the entire file name with the following:
SA3-3_2e[your first name initial]_[your last name]

hoto/Paul Sakuma

CHAPTER
4

Completing the Accounting Cycle

Electronic Arts Inc.

Most of us have had to file a personal tax return. At the beginning of the year, you estimate your upcoming income and decide whether you need to increase your payroll tax withholdings or perhaps pay estimated taxes. During the year, you earn income and enter into tax-related transactions, such as making charitable contributions. At the end of the year, your employer sends you a tax withholding information (W-2) form, and you collect the tax records needed for completing your yearly tax forms. As the next year begins, you start the cycle all over again.

Businesses also go through a cycle of activities. For example, Electronic Arts Inc., the world's largest developer and marketer of electronic game software, begins its cycle by developing new or revised game titles, such as Madden NFL Football®, Need for Speed®, The Sims®, and The Lord of the Rings®. These games are marketed and sold throughout the year. During the year, operating transactions of the business are recorded. For Electronic Arts, such transactions include the salaries of game developers, advertising expenditures, costs for producing and packaging games, and game revenues. At the end of the year, financial statements are prepared that summarize the operating activities for the year. Electronic Arts publishes these statements on its Web site at **http://investor.ea.com**. Finally, before the start of the next year, the accounts are readied for recording the operations of the next year.

In Chapter 1, the initial cycle for NetSolutions began with Chris Clark's investment in the business on November 1, 2011. The cycle continued with recording NetSolutions' transactions for November and December, as we discussed and illustrated in Chapters 1 and 2. In Chapter 3, the cycle continued when the adjusting entries for the two months ending December 31, 2011, were recorded. In this chapter, the cycle is completed for NetSolutions by preparing financial statements and getting the accounts ready for recording transactions of the next period.

Learning Objectives

After studying this chapter, you should be able to:

		Example Exercises	*Page*
OBJ. 1	Describe the flow of accounting information from the unadjusted trial balance into the adjusted trial balance and financial statements. Flow of Accounting Information	EE 4-1	154
OBJ. 2	Prepare financial statements from adjusted account balances. Financial Statements Income Statement Statement of Owner's Equity Balance Sheet	 EE 4-2 EE 4-3	 156 157
OBJ. 3	Prepare closing entries. Closing Entries Journalizing and Posting Closing Entries Post-Closing Trial Balance	 EE 4-4	 161
OBJ. 4	Describe the accounting cycle. Accounting Cycle	EE 4-5	164
OBJ. 5	Illustrate the accounting cycle for one period. Illustration of the Accounting Cycle		
OBJ. 6	Explain what is meant by the fiscal year and the natural business year. Fiscal Year		
OBJ. 7	Describe and illustrate the use of working capital and the current ratio in evaluating a company's financial condition. Financial Analysis and Interpretation: Working Capital and Current Ratio	EE 4-6	180

At a Glance 4 Page 182D

Flow of Accounting Information

OBJ. 1 Describe the flow of accounting information from the unadjusted trial balance into the adjusted trial balance and financial statements.

The process of adjusting the accounts and preparing financial statements is one of the most important in accounting. Using the **NetSolutions** illustration from Chapters 1–3, the end-of-period spreadsheet and flow of accounting data in adjusting accounts and preparing financial statements are summarized in Exhibit 1.

The end-of-period spreadsheet in Exhibit 1 begins with the unadjusted trial balance. The unadjusted trial balance verifies that the total of the debit balances equals the total of the credit balances. If the trial balance totals are unequal, an error has occurred. Any errors must be found and corrected before the end-of-period process can continue.

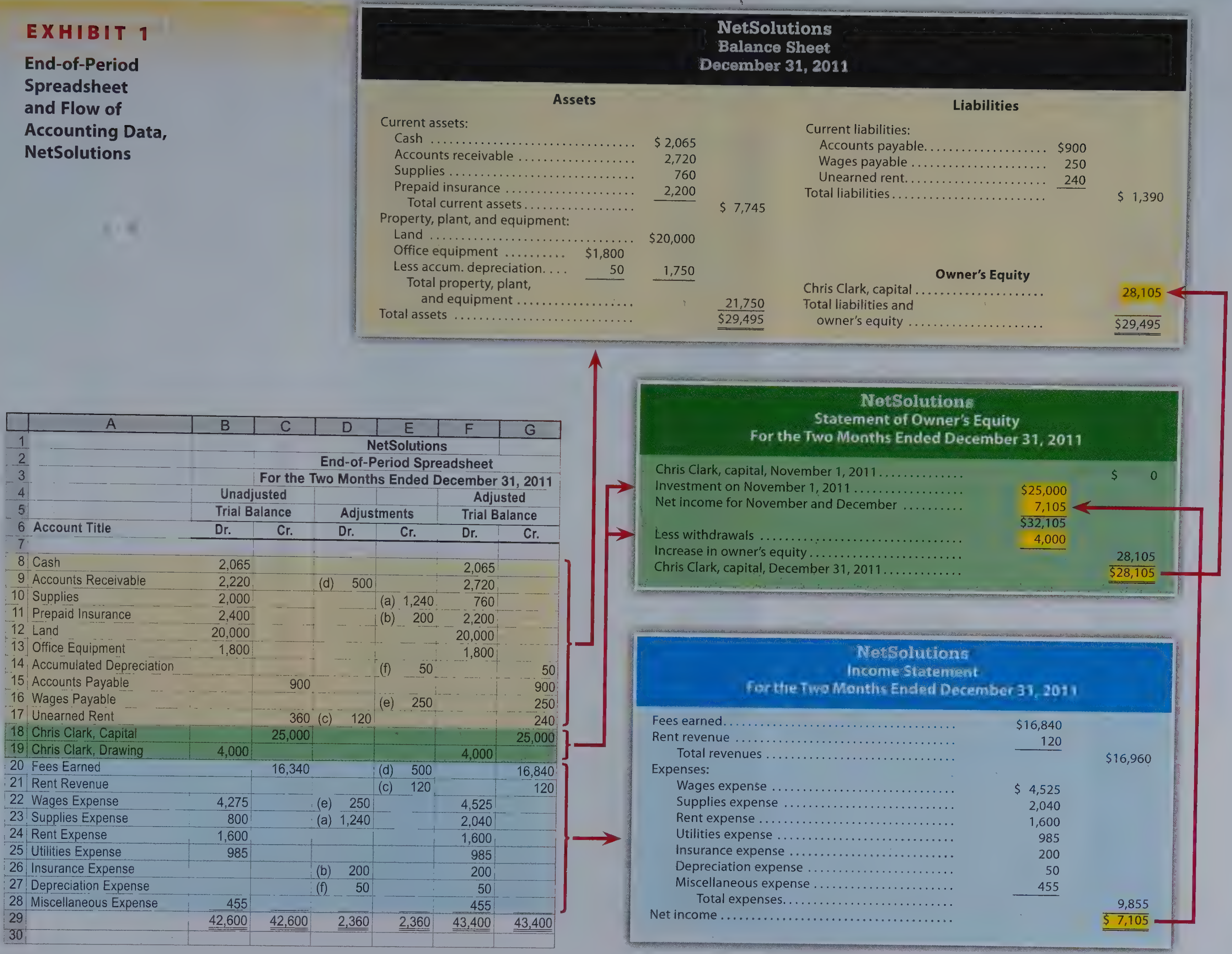
The adjustments for NetSolutions from Chapter 3 are shown in the Adjustments columns of the spreadsheet. Cross-referencing (by letters) the debit and credit of each adjustment is useful in reviewing the effect of the adjustments on the unadjusted account balances. The adjustments are normally entered in the order in which the data are assembled. If the titles of the accounts to be adjusted do not appear in the unadjusted trial balance, the accounts are inserted in their proper order in the Account Title column. The total of the Adjustments columns verifies that the total debits equal the total credits for the adjusting entries. The total of the Debit column must equal the total of the Credit column.

Many companies use Microsoft's Excel® software to prepare end-of-period spreadsheets.

The adjustments in the spreadsheet are added to or subtracted from the amounts in the Unadjusted Trial Balance columns to arrive at the amounts inserted in the Adjusted Trial Balance columns. In this way, the Adjusted Trial Balance columns of the spreadsheet illustrate the effect of the adjusting entries on the unadjusted accounts. The totals of the Adjusted Trial Balance columns verify that the totals of the debit and credit balances are equal after adjustment.

EXHIBIT 1

End-of-Period Spreadsheet and Flow of Accounting Data, NetSolutions



NetSolutions
Balance Sheet
December 31, 2011

Assets			
Current assets:			
Cash		$ 2,065	
Accounts receivable		2,720	
Supplies		760	
Prepaid insurance		2,200	
Total current assets			$ 7,745
Property, plant, and equipment:			
Land		$20,000	
Office equipment	$1,800		
Less accum. depreciation	50	1,750	
Total property, plant, and equipment			21,750
Total assets			$29,495

Liabilities		
Current liabilities:		
Accounts payable	$900	
Wages payable	250	
Unearned rent	240	
Total liabilities		$ 1,390
Owner's Equity		
Chris Clark, capital		28,105
Total liabilities and owner's equity		$29,495

	A	B	C	D	E	F	G
1				NetSolutions			
2				End-of-Period Spreadsheet			
3				For the Two Months Ended December 31, 2011			
4		Unadjusted				Adjusted	
5		Trial Balance		Adjustments		Trial Balance	
6	Account Title	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
7							
8	Cash	2,065				2,065	
9	Accounts Receivable	2,220		(d) 500		2,720	
10	Supplies	2,000			(a) 1,240	760	
11	Prepaid Insurance	2,400			(b) 200	2,200	
12	Land	20,000				20,000	
13	Office Equipment	1,800				1,800	
14	Accumulated Depreciation				(f) 50		50
15	Accounts Payable		900				900
16	Wages Payable				(e) 250		250
17	Unearned Rent		360	(c) 120			240
18	Chris Clark, Capital		25,000				25,000
19	Chris Clark, Drawing	4,000				4,000	
20	Fees Earned		16,340		(d) 500		16,840
21	Rent Revenue				(c) 120		120
22	Wages Expense	4,275		(e) 250		4,525	
23	Supplies Expense	800		(a) 1,240		2,040	
24	Rent Expense	1,600				1,600	
25	Utilities Expense	985				985	
26	Insurance Expense			(b) 200		200	
27	Depreciation Expense			(f) 50		50	
28	Miscellaneous Expense	455				455	
29		42,600	42,600	2,360	2,360	43,400	43,400
30							

NetSolutions
Statement of Owner's Equity
For the Two Months Ended December 31, 2011

Chris Clark, capital, November 1, 2011		$ 0
Investment on November 1, 2011	$25,000	
Net income for November and December	7,105	
	$32,105	
Less withdrawals	4,000	
Increase in owner's equity		28,105
Chris Clark, capital, December 31, 2011		$28,105

NetSolutions
Income Statement
For the Two Months Ended December 31, 2011

Fees earned	$16,840	
Rent revenue	120	
Total revenues		$16,960
Expenses:		
Wages expense	$ 4,525	
Supplies expense	2,040	
Rent expense	1,600	
Utilities expense	985	
Insurance expense	200	
Depreciation expense	50	
Miscellaneous expense	455	
Total expenses		9,855
Net income		$ 7,105

Exhibit 1 also illustrates the flow of accounts from the adjusted trial balance into the financial statements as follows:

1. The revenue and expense accounts (spreadsheet lines 20–28) flow into the income statement.
2. The owner's capital account, Chris Clark, Capital, (spreadsheet line 18) and owner's drawing account, Chris Clark, Drawing, (spreadsheet line 19) flow into the statement of owner's equity. The net income of $7,105 also flows into the statement of owner's equity from the income statement.
3. The asset and liability accounts (spreadsheet lines 8–17) flow into the balance sheet. The end-of-the-period owner's equity (Chris Clark, Capital of $28,105) also flows into the balance sheet from the statement of owner's equity.

To summarize, Exhibit 1 illustrates the process by which accounts are adjusted. In addition, Exhibit 1 illustrates how the adjusted accounts flow into the financial statements. The financial statements for NetSolutions can be prepared directly from Exhibit 1.

The spreadsheet in Exhibit 1 is not required. However, many accountants prepare such a spreadsheet, sometimes called a work sheet, as part of the normal end-of-period process. The primary advantage in doing so is that it allows managers and accountants to see the effect of adjustments on the financial statements. This is especially useful for adjustments that depend upon estimates. Such estimates and their effect on the financial statements are discussed in later chapters.[1]

Example Exercise 4-1 Flow of Accounts into Financial Statements

OBJ. 1

The balances for the accounts listed below appear in the Adjusted Trial Balance columns of the end-of-period spreadsheet. Indicate whether each account would flow into the income statement, statement of owner's equity, or balance sheet.

1. Office Equipment
2. Utilities Expense
3. Accumulated Depreciation—Equipment
4. Unearned Rent
5. Fees Earned
6. Doug Johnson, Drawing
7. Rent Revenue
8. Supplies

Follow My Example 4-1

1. Balance sheet
2. Income statement
3. Balance sheet
4. Balance sheet
5. Income statement
6. Statement of owner's equity
7. Income statement
8. Balance sheet

Practice Exercises: **PE 4-1A, PE 4-1B**

OBJ. 2 Prepare financial statements from adjusted account balances.

Financial Statements

Using the adjusted trial balance shown in Exhibit 1, the financial statements for **NetSolutions** can be prepared. The income statement, the statement of owner's equity, and the balance sheet are shown in Exhibit 2.

Income Statement

The income statement is prepared directly from the Adjusted Trial Balance columns of the Exhibit 1 spreadsheet, beginning with fees earned of $16,840. The expenses in the income statement in Exhibit 2 are listed in order of size, beginning with the larger items. Miscellaneous expense is the last item, regardless of its amount.

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[1] The appendix to this chapter describes and illustrates how to prepare an end-of-period spreadsheet (work sheet) that includes financial statement columns.

EXHIBIT 2 Financial Statements, NetSolutions

NetSolutions
Income Statement
For the Two Months Ended December 31, 2011

Fees earned	$16,840	
Rent revenue	120	
Total revenues		$16,960
Expenses:		
Wages expense	$ 4,525	
Supplies expense	2,040	
Rent expense	1,600	
Utilities expense	985	
Insurance expense	200	
Depreciation expense	50	
Miscellaneous expense	455	
Total expenses		9,855
Net income		$ 7,105

NetSolutions
Statement of Owner's Equity
For the Two Months Ended December 31, 2011

Chris Clark, capital, November 1, 2011		$ 0
Investment on November 1, 2011	$25,000	
Net income for November and December	7,105	
	$32,105	
Less withdrawals	4,000	
Increase in owner's equity		28,105
Chris Clark, capital, December 31, 2011		$28,105

NetSolutions
Balance Sheet
December 31, 2011

Assets				Liabilities		
Current assets:				Current liabilities:		
Cash		$ 2,065		Accounts payable	$900	
Accounts receivable		2,720		Wages payable	250	
Supplies		760		Unearned rent	240	
Prepaid insurance		2,200		Total liabilities		$ 1,390
Total current assets			$ 7,745			
Property, plant, and equipment:						
Land		$20,000				
Office equipment	$1,800					
Less accum. depreciation	50	1,750		**Owner's Equity**		
Total property, plant, and equipment			21,750	Chris Clark, capital		28,105
Total assets			$29,495	Total liabilities and owner's equity		$29,495

Integrity, Objectivity, and Ethics in Business

CEO'S HEALTH?

How much and what information to disclose in financial statements and to investors presents a common ethical dilemma for managers and accountants. For example, Steve Jobs, co-founder and CEO of Apple Inc., has been diagnosed and treated for pancreatic cancer. Apple Inc., has insisted that the status of Steve Jobs's health is a "private" matter and does not have to be disclosed to investors. Apple maintains this position even though Jobs is a driving force behind Apple's innovation and financial success.

In January 2009, however, in response to increasing investor concerns and speculation, Jobs released a letter to investors on his health. The letter indicated that his recent weight loss was due to a hormone imbalance and not due to the recurrence of cancer.

Statement of Owner's Equity

The first item presented on the statement of owner's equity is the balance of the owner's capital account at the beginning of the period. The amount listed as owner's capital in the spreadsheet, however, is not always the account balance at the beginning of the period. The owner may have invested additional assets in the business during the period. For the beginning balance and any additional investments, it is necessary to refer to the owner's capital account in the ledger. These amounts, along with the net income (or net loss) and the drawing account balance, are used to determine the ending owner's capital account balance.

The basic form of the statement of owner's equity is shown in Exhibit 2. For NetSolutions, the amount of drawings by the owner was less than the net income. If the owner's withdrawals had exceeded the net income, the order of the net income and the withdrawals would have been reversed. The difference between the two items would then be deducted from the beginning capital account balance. Other factors, such as additional investments or a net loss, also require some change in the form, as shown below.

Allan Johnson, capital, January 1, 2011	$39,000	
Additional investment during the year	6,000	
Total		$45,000
Net loss for the year	$ 5,600	
Withdrawals	9,500	
Decrease in owner's equity		15,100
Allan Johnson, capital, December 31, 2011		$29,900

Example Exercise 4-2 Statement of Owner's Equity

OBJ. 2

Zack Gaddis owns and operates Gaddis Employment Services. On January 1, 2011, Zack Gaddis, Capital had a balance of $186,000. During the year, Zack invested an additional $40,000 and withdrew $25,000. For the year ended December 31, 2011, Gaddis Employment Services reported a net income of $18,750. Prepare a statement of owner's equity for the year ended December 31, 2011.

Follow My Example 4-2

Gaddis Employment Services
Statement of Owner's Equity
For the Year Ended December 31, 2011

Zack Gaddis, capital, January 1, 2011	$186,000	
Additional investment during 2011	40,000	
Total		$226,000
Withdrawals	$ 25,000	
Less net income	18,750	
Decrease in owner's equity		6,250
Zack Gaddis, capital, December 31, 2011		$219,750

Practice Exercises: **PE 4-2A, PE 4-2B**

Balance Sheet

The balance sheet is prepared directly from the Adjusted Trial Balance columns of the Exhibit 1 spreadsheet, beginning with Cash of $2,065. The asset and liability amounts are taken from the spreadsheet. The owner's equity amount, however, is taken from the statement of owner's equity, as illustrated in Exhibit 2.

The balance sheet in Exhibit 2 shows subsections for assets and liabilities. Such a balance sheet is a *classified balance sheet*. These subsections are described next.

Assets Assets are commonly divided into two sections on the balance sheet: (1) current assets and (2) property, plant, and equipment.

Current Assets Cash and other assets that are expected to be converted to cash or sold or used up usually within one year or less, through the normal operations of the business, are called **current assets**. In addition to cash, the current assets may include notes receivable, accounts receivable, supplies, and other prepaid expenses.

Notes receivable are amounts that customers owe. They are written promises to pay the amount of the note and interest. Accounts receivable are also amounts customers owe, but they are less formal than notes. Accounts receivable normally result from providing services or selling merchandise on account. Notes receivable and accounts receivable are current assets because they are usually converted to cash within one year or less.

Note:
Two common classes of assets are current assets and property, plant, and equipment.

Property, Plant, and Equipment The property, plant, and equipment section may also be described as **fixed assets** or **plant assets**. These assets include equipment, machinery, buildings, and land. With the exception of land, as discussed in Chapter 3, fixed assets depreciate over a period of time. The original cost, accumulated depreciation, and book value of each major type of fixed asset are normally reported on the balance sheet or in the notes to the financial statements.

Liabilities Liabilities are the amounts the business owes to creditors. Liabilities are commonly divided into two sections on the balance sheet: (1) current liabilities and (2) long-term liabilities.

Current Liabilities Liabilities that will be due within a short time (usually one year or less) and that are to be paid out of current assets are called **current liabilities**. The most common liabilities in this group are notes payable and accounts payable. Other current liabilities may include Wages Payable, Interest Payable, Taxes Payable, and Unearned Fees.

Note:
Two common classes of liabilities are current liabilities and long-term liabilities.

Long-Term Liabilities Liabilities that will not be due for a long time (usually more than one year) are called **long-term liabilities**. If NetSolutions had long-term liabilities, they would be reported below the current liabilities. As long-term liabilities come due and are to be paid within one year, they are reported as current liabilities. If they are to be renewed rather than paid, they would continue to be reported as long term. When an asset is pledged as security for a liability, the obligation may be called a *mortgage note payable* or a *mortgage payable*.

Owner's Equity The owner's right to the assets of the business is presented on the balance sheet below the liabilities section. The owner's equity is added to the total liabilities, and this total must be equal to the total assets.

Example Exercise 4-3 Classified Balance Sheet

OBJ. 2

The following accounts appear in an adjusted trial balance of Hindsight Consulting. Indicate whether each account would be reported in the (a) current asset; (b) property, plant, and equipment; (c) current liability; (d) long-term liability; or (e) owner's equity section of the December 31, 2011, balance sheet of Hindsight Consulting.

1. Jason Corbin, Capital
2. Notes Receivable (due in 6 months)
3. Notes Payable (due in 2013)
4. Land
5. Cash
6. Unearned Rent (3 months)
7. Accumulated Depreciation—Equipment
8. Accounts Payable

(continued)

Follow My Example 4-3

1. Owner's equity
2. Current asset
3. Long-term liability
4. Property, plant, and equipment
5. Current asset
6. Current liability
7. Property, plant, and equipment
8. Current liability

Practice Exercises: **PE 4-3A, PE 4-3B**

IFRS

International Connection

INTERNATIONAL DIFFERENCES

Financial statements prepared under accounting practices in other countries often differ from those prepared under generally accepted accounting principles in the United States. This is to be expected, since cultures and market structures differ from country to country.

To illustrate, BMW Group prepares its financial statements under International Financial Reporting Standards as adopted by the European Union. In doing so, BMW's balance sheet reports fixed assets first, followed by current assets. It also reports owner's equity before the liabilities. In contrast, balance sheets prepared under U.S. accounting principles report current assets followed by fixed assets and current liabilities followed by long-term liabilities and owner's equity. The U.S. form of balance sheet is organized to emphasize creditor interpretation and analysis. For example, current assets and current liabilities are presented first to facilitate their interpretation and analysis by creditors. Likewise, to emphasize their importance, liabilities are reported before owner's equity.*

Regardless of these differences, the basic principles underlying the accounting equation and the double-entry accounting system are the same in Germany and the United States. Even though differences in recording and reporting exist, the accounting equation holds true: the total assets still equal the total liabilities and owner's equity.

*Examples of U.S. and IFRS financial statement reporting differences are further discussed and illustrated in Appendix D.

OBJ. 3 Prepare closing entries.

Closing Entries

As discussed in Chapter 3, the adjusting entries are recorded in the journal at the end of the accounting period. For NetSolutions, the adjusting entries are shown in Exhibit 9 of Chapter 3.

After the adjusting entries are posted to NetSolutions' ledger, shown in Exhibit 6 (on pages 162–163), the ledger agrees with the data reported on the financial statements.

The balances of the accounts reported on the balance sheet are carried forward from year to year. Because they are relatively permanent, these accounts are called **permanent accounts** or **real accounts**. For example, Cash, Accounts Receivable, Equipment, Accumulated Depreciation, Accounts Payable, and Owner's Capital are permanent accounts.

The balances of the accounts reported on the income statement are not carried forward from year to year. Also, the balance of the owner's drawing account, which is reported on the statement of owner's equity, is not carried forward. Because these accounts report amounts for only one period, they are called **temporary accounts** or **nominal accounts**. Temporary accounts are not carried forward because they relate only to one period. For example, the Fees Earned of $16,840 and Wages Expense of $4,525 for NetSolutions shown in Exhibit 2 are for the two months ending December 31, 2011, and should not be carried forward to 2012.

Note:
Closing entries transfer the balances of temporary accounts to the owner's capital account.

At the beginning of the next period, temporary accounts should have zero balances. To achieve this, temporary account balances are transferred to permanent accounts at the end of the accounting period. The entries that transfer these balances are called **closing entries**. The transfer process is called the **closing process** and is sometimes referred to as **closing the books**.

The closing process involves the following four steps:

1. Revenue account balances are transferred to an account called Income Summary.
2. Expense account balances are transferred to an account called Income Summary.

3. The balance of Income Summary (net income or net loss) is transferred to the owner's capital account.
4. The balance of the owner's drawing account is transferred to the owner's capital account.

Exhibit 3 diagrams the closing process.

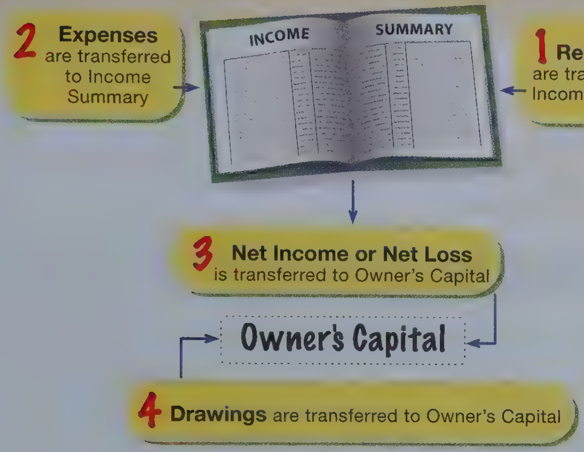


EXHIBIT 3

The Closing Process

Income Summary is a temporary account that is only used during the closing process. At the beginning of the closing process, Income Summary has no balance. During the closing process, Income Summary will be debited and credited for various amounts. At the end of the closing process, Income Summary will again have no balance. Because Income Summary has the effect of clearing the revenue and expense accounts of their balances, it is sometimes called a **clearing account**. Other titles used for this account include Revenue and Expense Summary, Profit and Loss Summary, and Income and Expense Summary.

Note: The income summary account does not appear on the financial statements.

The four closing entries required in the closing process are as follows:

1. Debit each revenue account for its balance and credit Income Summary for the total revenue.
2. Credit each expense account for its balance and debit Income Summary for the total expenses.
3. Debit Income Summary for its balance and credit the owner's capital account.
4. Debit the owner's capital account for the balance of the drawing account and credit the drawing account.

In the case of a net loss, Income Summary will have a debit balance after the first two closing entries. In this case, credit Income Summary for the amount of its balance and debit the owner's capital account for the amount of the net loss.

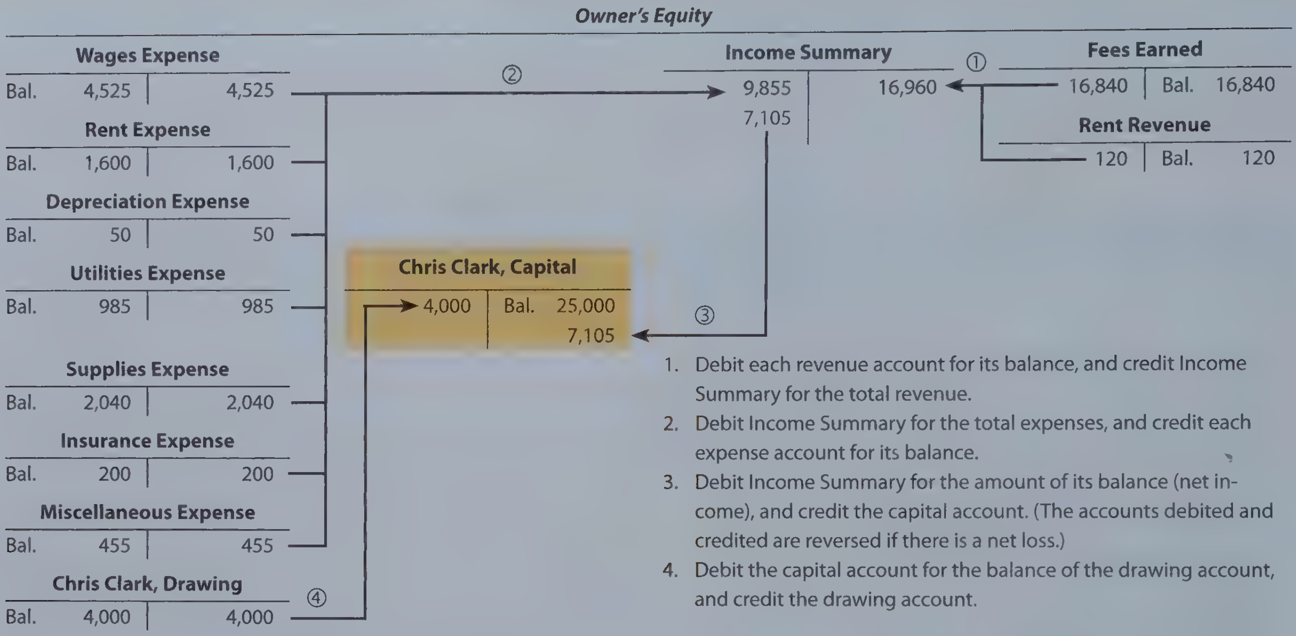
Closing entries are recorded in the journal and are dated as of the last day of the accounting period. In the journal, closing entries are recorded immediately following the adjusting entries. The caption, *Closing Entries*, is often inserted above the closing entries to separate them from the adjusting entries.

It is possible to close the temporary revenue and expense accounts without using a clearing account such as Income Summary. In this case, the balances of the revenue and expense accounts are closed directly to the owner's capital account. This process may be used in a computerized accounting system.

Journalizing and Posting Closing Entries

A flowchart of the four closing entries for NetSolutions is shown in Exhibit 4. The balances in the accounts are those shown in the Adjusted Trial Balance columns of the end-of-period spreadsheet shown in Exhibit 1.

EXHIBIT 4 Flowchart of Closing Entries for NetSolutions



1. Debit each revenue account for its balance, and credit Income Summary for the total revenue.
2. Debit Income Summary for the total expenses, and credit each expense account for its balance.
3. Debit Income Summary for the amount of its balance (net income), and credit the capital account. (The accounts debited and credited are reversed if there is a net loss.)
4. Debit the capital account for the balance of the drawing account, and credit the drawing account.

The closing entries for NetSolutions are shown in Exhibit 5. The account titles and balances for these entries may be obtained from the end-of-period spreadsheet, the adjusted trial balance, the income statement, the statement of owner's equity, or the ledger.

EXHIBIT 5

Closing Entries, NetSolutions

Journal *Page 6*

Date		Description	Post. Ref.	Debit	Credit
		Closing Entries			
2011					
Dec.	31	Fees Earned	41	16,840	
		Rent Revenue	42	120	
		Income Summary	33		16,960
	31	Income Summary	33	9,855	
		Wages Expense	51		4,525
		Rent Expense	52		1,600
		Depreciation Expense	53		50
		Utilities Expense	54		985
		Supplies Expense	55		2,040
		Insurance Expense	56		200
		Miscellaneous Expense	59		455
	31	Income Summary	33	7,105	
		Chris Clark, Capital	31		7,105
	31	Chris Clark, Capital	31	4,000	
		Chris Clark, Drawing	32		4,000

The closing entries are posted to NetSolutions' ledger as shown in Exhibit 6 (pages 162–163). Income Summary has been added to NetSolutions' ledger in Exhibit 6 as account number 33. After the closing entries are posted, NetSolutions' ledger has the following characteristics:

1. The balance of Chris Clark, Capital of $28,105 agrees with the amount reported on the statement of owner's equity and the balance sheet.
2. The revenue, expense, and drawing accounts will have zero balances.

As shown in Exhibit 6, the closing entries are normally identified in the ledger as "Closing." In addition, a line is often inserted in both balance columns after a closing entry is posted. This separates next period's revenue, expense, and withdrawal transactions from those of the current period. Next period's transactions will be posted directly below the closing entry.

Example Exercise 4-4 Closing Entries

OBJ. 3

After the accounts have been adjusted at July 31, the end of the fiscal year, the following balances are taken from the ledger of Cabriolet Services Co.:

Terry Lambert, Capital	$615,850
Terry Lambert, Drawing	25,000
Fees Earned	380,450
Wages Expense	250,000
Rent Expense	65,000
Supplies Expense	18,250
Miscellaneous Expense	6,200

Journalize the four entries required to close the accounts.

Follow My Example 4-4

July	31	Fees Earned	380,450	
		Income Summary		380,450
	31	Income Summary	339,450	
		Wages Expense		250,000
		Rent Expense		65,000
		Supplies Expense		18,250
		Miscellaneous Expense		6,200
	31	Income Summary	41,000	
		Terry Lambert, Capital		41,000
	31	Terry Lambert, Capital	25,000	
		Terry Lambert, Drawing		25,000

Practice Exercises: **PE 4-4A, PE 4-4B**

Post-Closing Trial Balance

A post-closing trial balance is prepared after the closing entries have been posted. The purpose of the post-closing (after closing) trial balance is to verify that the ledger is in balance at the beginning of the next period. The accounts and amounts should agree exactly with the accounts and amounts listed on the balance sheet at the end of the period. The post-closing trial balance for NetSolutions is shown in Exhibit 7.

EXHIBIT 6 Ledger, NetSolutions

Account *Cash* Account No. *11*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 1		1	25,000		25,000	
5		1		20,000	5,000	
18		1	7,500		12,500	
30		1		3,650	8,850	
30		1		950	7,900	
30		2		2,000	5,900	
Dec. 1		2		2,400	3,500	
1		2		800	2,700	
1		2	360		3,060	
6		2		180	2,880	
11		2		400	2,480	
13		3		950	1,530	
16		3	3,100		4,630	
20		3		900	3,730	
21		3	650		4,380	
23		3		1,450	2,930	
27		3		1,200	1,730	
31		3		310	1,420	
31		4		225	1,195	
31		4	2,870		4,065	
31		4		2,000	2,065	

Account *Accounts Receivable* Account No. *12*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 16		3	1,750		1,750	
21		3		650	1,100	
31		4	1,120		2,220	
31	Adjusting	5	500		2,720	

Account *Supplies* Account No. *14*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 10		1	1,350		1,350	
30		1		800	550	
Dec. 23		3	1,450		2,000	
31	Adjusting	5		1,240	760	

Account *Prepaid Insurance* Account No. *15*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 1		2	2,400		2,400	
31	Adjusting	5		200	2,200	

Account *Land* Account No. *17*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 5		1	20,000		20,000	

Account *Office Equipment* Account No. *18*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 4		2	1,800		1,800	

Account *Accumulated Depreciation* Account No. *19*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 31	Adjusting	5		50		50

Account *Accounts Payable* Account No. *21*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 10		1		1,350		1,350
30		1	950			400
Dec. 4		2		1,800		2,200
11		2	400			1,800
20		3	900			900

Account *Wages Payable* Account No. *22*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 31	Adjusting	5		250		250

Account *Unearned Rent* Account No. *23*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 1		2		360		360
31	Adjusting	5	120			240

Account *Chris Clark, Capital* Account No. *31*

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 1		1		25,000		25,000
Dec. 31	Closing	6		7,105		32,105
31	Closing	6	4,000			28,105

EXHIBIT 6 Ledger, NetSolutions (*concluded*)

Account *Chris Clark, Drawing* Account No. 32

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		2	2,000		2,000	
Dec. 31		4	2,000		4,000	
31	Closing	6		4,000	—	—

Account *Income Summary* Account No. 33

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 31	Closing	6		16,960		16,960
31	Closing	6	9,855			7,105
31	Closing	6	7,105		—	—

Account *Fees Earned* Account No. 41

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 18		1		7,500		7,500
Dec. 16		3		3,100		10,600
16		3		1,750		12,350
31		4		2,870		15,220
31		4		1,120		16,340
31	Adjusting	5		500		16,840
31	Closing	6	16,840		—	—

Account *Rent Revenue* Account No. 42

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 31	Adjusting	5		120		120
31	Closing	6	120		—	—

Account *Wages Expense* Account No. 51

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	2,125		2,125	
Dec. 13		3	950		3,075	
27		3	1,200		4,275	
31	Adjusting	5	250		4,525	
31	Closing	6		4,525	—	—

Account *Rent Expense* Account No. 52

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	800		800	
Dec. 1		2	800		1,600	
31	Closing	6		1,600	—	—

Account *Depreciation Expense* Account No. 53

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 31	Adjusting	5	50		50	
31	Closing	6		50	—	—

Account *Utilities Expense* Account No. 54

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	450		450	
Dec. 31		3	310		760	
31		4	225		985	
31	Closing	6		985	—	—

Account *Supplies Expense* Account No. 55

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	800		800	
Dec. 31	Adjusting	5	1,240		2,040	
31	Closing	6		2,040	—	—

Account *Insurance Expense* Account No. 56

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Dec. 31	Adjusting	5	200		200	
31	Closing	6		200	—	—

Account *Miscellaneous Expense* Account No. 59

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2011						
Nov. 30		1	275		275	
Dec. 6		2	180		455	
31	Closing	6		455	—	—

EXHIBIT 7

Post-Closing Trial Balance, NetSolutions

NetSolutions
Post-Closing Trial Balance
December 31, 2011

	Debit Balances	Credit Balances
Cash	2,065	
Accounts Receivable	2,720	
Supplies	760	
Prepaid Insurance	2,200	
Land	20,000	
Office Equipment	1,800	
Accumulated Depreciation		50
Accounts Payable		900
Wages Payable		250
Unearned Rent		240
Chris Clark, Capital		28,105
	29,545	29,545

OBJ. 4 Describe the accounting cycle.

Accounting Cycle

The accounting process that begins with analyzing and journalizing transactions and ends with the post-closing trial balance is called the **accounting cycle**. The steps in the accounting cycle are as follows:

1. Transactions are analyzed and recorded in the journal.
2. Transactions are posted to the ledger.
3. An unadjusted trial balance is prepared.
4. Adjustment data are assembled and analyzed.
5. An optional end-of-period spreadsheet is prepared.
6. Adjusting entries are journalized and posted to the ledger.
7. An adjusted trial balance is prepared.
8. Financial statements are prepared.
9. Closing entries are journalized and posted to the ledger.
10. A post-closing trial balance is prepared.[2]

Example Exercise 4-5 Accounting Cycle

OBJ. 4

From the following list of steps in the accounting cycle, identify what two steps are missing.

a. Transactions are analyzed and recorded in the journal.
b. Transactions are posted to the ledger.
c. Adjustment data are assembled and analyzed.
d. An optional end-of-period spreadsheet is prepared.
e. Adjusting entries are journalized and posted to the ledger.
f. Financial statements are prepared.
g. Closing entries are journalized and posted to the ledger.
h. A post-closing trial balance is prepared.

Follow My Example 4-5

The following two steps are missing: (1) the preparation of an unadjusted trial balance and (2) the preparation of the adjusted trial balance. The unadjusted trial balance should be prepared after step (b). The adjusted trial balance should be prepared after step (e).

Practice Exercises: **PE 4-5A, PE 4-5B**

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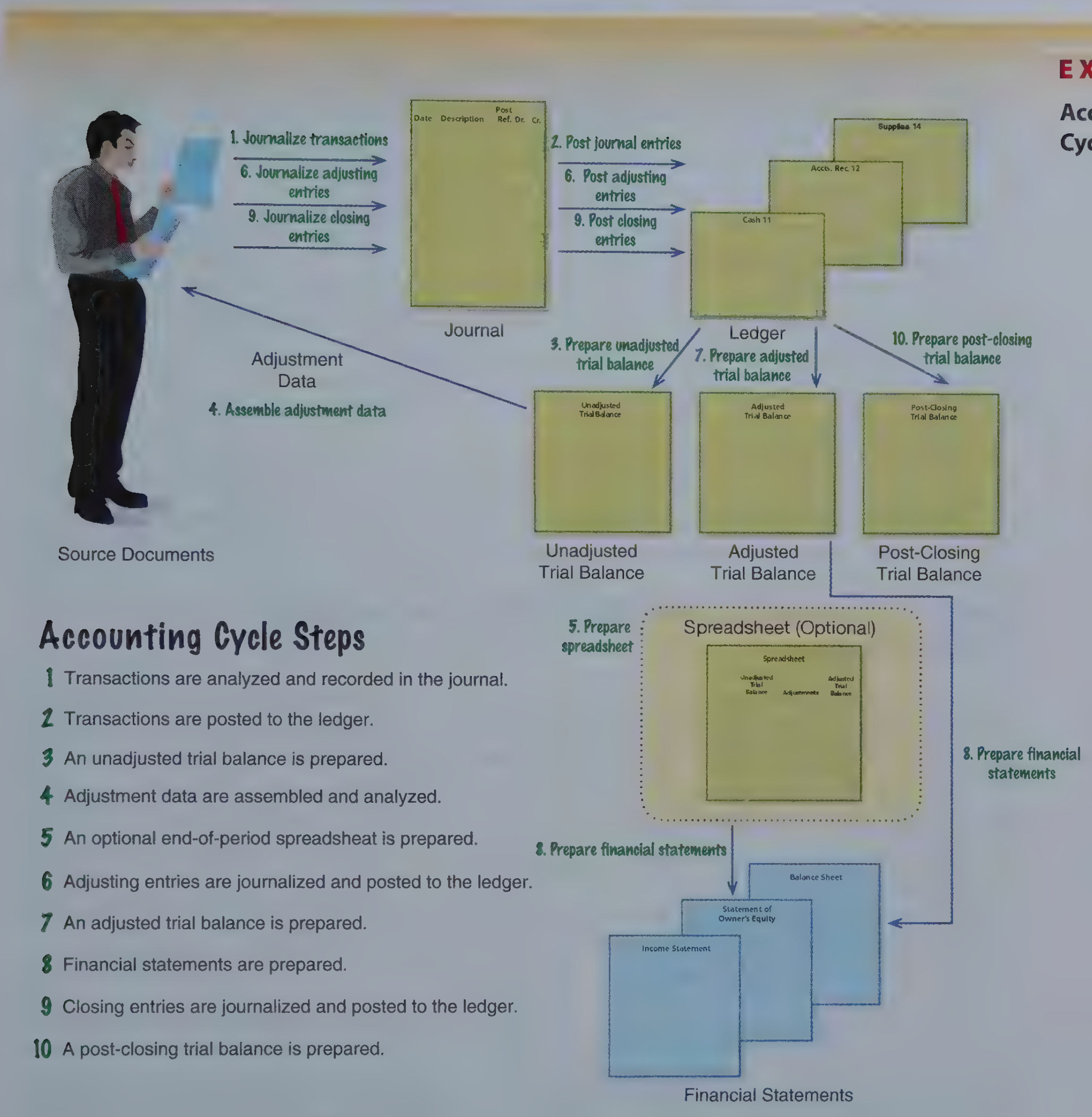
[2] Some accountants include the journalizing and posting of "reversing entries" as the last step in the accounting cycle. Because reversing entries are not required, they are described and illustrated in Appendix B at the end of the book.

EXHIBIT 8

Accounting Cycle



Accounting Cycle Steps

1 Transactions are analyzed and recorded in the journal.
2 Transactions are posted to the ledger.
3 An unadjusted trial balance is prepared.
4 Adjustment data are assembled and analyzed.
5 An optional end-of-period spreadsheat is prepared.
6 Adjusting entries are journalized and posted to the ledger.
7 An adjusted trial balance is prepared.
8 Financial statements are prepared.
9 Closing entries are journalized and posted to the ledger.
10 A post-closing trial balance is prepared.

Exhibit 8 illustrates the accounting cycle in graphic form. It also illustrates how the accounting cycle begins with the source documents for a transaction and flows through the accounting system and into the financial statements.

Illustration of the Accounting Cycle

OBJ. 5 Illustrate the accounting cycle for one period.

In this section, the complete accounting cycle for one period is illustrated. Assume that for several years Kelly Pitney has operated a part-time consulting business from her home. As of April 1, 2012, Kelly decided to move to rented quarters and to operate the business on a full-time basis. The business will be known as Kelly Consulting. During April, Kelly Consulting entered into the following transactions:

Apr. 1. The following assets were received from Kelly Pitney: cash, $13,100; accounts receivable, $3,000; supplies, $1,400; and office equipment, $12,500. There were no liabilities received.
1. Paid three months' rent on a lease rental contract, $4,800.
2. Paid the premiums on property and casualty insurance policies, $1,800.
4. Received cash from clients as an advance payment for services to be provided and recorded it as unearned fees, $5,000.

Apr. 5. Purchased additional office equipment on account from Office Station Co., $2,000.
6. Received cash from clients on account, $1,800.
10. Paid cash for a newspaper advertisement, $120.
12. Paid Office Station Co. for part of the debt incurred on April 5, $1,200.
12. Recorded services provided on account for the period April 1–12, $4,200.
14. Paid part-time receptionist for two weeks' salary, $750.
17. Recorded cash from cash clients for fees earned during the period April 1–16, $6,250.
18. Paid cash for supplies, $800.
20. Recorded services provided on account for the period April 13–20, $2,100.
24. Recorded cash from cash clients for fees earned for the period April 17–24, $3,850.
26. Received cash from clients on account, $5,600.
27. Paid part-time receptionist for two weeks' salary, $750.
29. Paid telephone bill for April, $130.
30. Paid electricity bill for April, $200.
30. Recorded cash from cash clients for fees earned for the period April 25–30, $3,050.
30. Recorded services provided on account for the remainder of April, $1,500.
30. Kelly withdrew $6,000 for personal use.

Step 1. Analyzing and Recording Transactions in the Journal

The first step in the accounting cycle is to analyze and record transactions in the journal using the double-entry accounting system. As illustrated in Chapter 2, transactions are analyzed and journalized using the following steps:

1. Carefully read the description of the transaction to determine whether an asset, liability, owner's equity, revenue, expense, or drawing account is affected.
2. For each account affected by the transaction, determine whether the account increases or decreases.
3. Determine whether each increase or decrease should be recorded as a debit or a credit, following the rules of debit and credit shown in Exhibit 3 of Chapter 2.
4. Record the transaction using a journal entry.

The company's chart of accounts is useful in determining which accounts are affected by the transaction. The chart of accounts for Kelly Consulting is as follows:

11 Cash
12 Accounts Receivable
14 Supplies
15 Prepaid Rent
16 Prepaid Insurance
18 Office Equipment
19 Accumulated Depreciation
21 Accounts Payable
22 Salaries Payable
23 Unearned Fees

31 Kelly Pitney, Capital
32 Kelly Pitney, Drawing
33 Income Summary
41 Fees Earned
51 Salary Expense
52 Rent Expense
53 Supplies Expense
54 Depreciation Expense
55 Insurance Expense
59 Miscellaneous Expense

After analyzing each of Kelly Consulting's transactions for April, the journal entries are recorded as shown in Exhibit 9.

Step 2. Posting Transactions to the Ledger

Periodically, the transactions recorded in the journal are posted to the accounts in the ledger. The debits and credits for each journal entry are posted to the accounts in the order in which they occur in the journal. As illustrated in Chapters 2 and 3, journal entries are posted to the accounts using the following four steps:

1. The date is entered in the Date column of the account.
2. The amount is entered into the Debit or Credit column of the account.
3. The journal page number is entered in the Posting Reference column.
4. The account number is entered in the Posting Reference (Post. Ref.) column in the journal.

EXHIBIT 9

Journal Entries for April, Kelly Consulting

Journal Page 1

Date		Description	Post. Ref.	Debit	Credit
2012 Apr.	1	Cash	11	13,100	
		Accounts Receivable	12	3,000	
		Supplies	14	1,400	
		Office Equipment	18	12,500	
		Kelly Pitney, Capital	31		30,000
	1	Prepaid Rent	15	4,800	
		Cash	11		4,800
	2	Prepaid Insurance	16	1,800	
		Cash	11		1,800
	4	Cash	11	5,000	
		Unearned Fees	23		5,000
	5	Office Equipment	18	2,000	
		Accounts Payable	21		2,000
	6	Cash	11	1,800	
		Accounts Receivable	12		1,800
	10	Miscellaneous Expense	59	120	
		Cash	11		120
	12	Accounts Payable	21	1,200	
		Cash	11		1,200
	12	Accounts Receivable	12	4,200	
		Fees Earned	41		4,200
	14	Salary Expense	51	750	
		Cash	11		750

Journal *Page 2*

Date		Description	Post. Ref.	Debit	Credit
2012 Apr.	17	Cash	11	6,250	
		Fees Earned	41		6,250
	18	Supplies	14	800	
		Cash	11		800
	20	Accounts Receivable	12	2,100	
		Fees Earned	41		2,100
	24	Cash	11	3,850	
		Fees Earned	41		3,850
	26	Cash	11	5,600	
		Accounts Receivable	12		5,600
	27	Salary Expense	51	750	
		Cash	11		750
	29	Miscellaneous Expense	59	130	
		Cash	11		130

(continued)

EXHIBIT 9

Journal Entries for April, Kelly Consulting *(concluded)*

Journal Page 2

Date		Description	Post. Ref.	Debit	Credit
2012 Apr.	30	Miscellaneous Expense	59	200	
		Cash	11		200
	30	Cash	11	3,050	
		Fees Earned	41		3,050
	30	Accounts Receivable	12	1,500	
		Fees Earned	41		1,500
	30	Kelly Pitney, Drawing	32	6,000	
		Cash	11		6,000

The journal entries for Kelly Consulting have been posted to the ledger shown in Exhibit 17 on pages 174–175.

Step 3. Preparing an Unadjusted Trial Balance

An unadjusted trial balance is prepared to determine whether any errors have been made in posting the debits and credits to the ledger. The unadjusted trial balance shown in Exhibit 10 does not provide complete proof of the accuracy of the ledger. It indicates only that the debits and the credits are equal. This proof is of value, however, because errors often affect the equality of debits and credits. If the two totals of a trial balance are not equal, an error has occurred that must be discovered and corrected.

EXHIBIT 10

Unadjusted Trial Balance, Kelly Consulting

Kelly Consulting
Unadjusted Trial Balance
April 30, 2012

	Debit Balances	Credit Balances
Cash	22,100	
Accounts Receivable	3,400	
Supplies	2,200	
Prepaid Rent	4,800	
Prepaid Insurance	1,800	
Office Equipment	14,500	
Accumulated Depreciation		0
Accounts Payable		800
Salaries Payable		0
Unearned Fees		5,000
Kelly Pitney, Capital		30,000
Kelly Pitney, Drawing	6,000	
Fees Earned		20,950
Salary Expense	1,500	
Rent Expense	0	
Supplies Expense	0	
Depreciation Expense	0	
Insurance Expense	0	
Miscellaneous Expense	450	
	56,750	56,750

The unadjusted account balances shown in Exhibit 10 were taken from Kelly Consulting's ledger shown in Exhibit 17, on pages 174–175, before any adjusting entries were recorded.

Step 4. Assembling and Analyzing Adjustment Data

Before the financial statements can be prepared, the accounts must be updated. The four types of accounts that normally require adjustment include prepaid expenses, unearned revenue, accrued revenue, and accrued expenses. In addition, depreciation expense must be recorded for fixed assets other than land. The following data have been assembled on April 30, 2012, for analysis of possible adjustments for Kelly Consulting:

a. Insurance expired during April is $300.
b. Supplies on hand on April 30 are $1,350.
c. Depreciation of office equipment for April is $330.
d. Accrued receptionist salary on April 30 is $120.
e. Rent expired during April is $1,600.
f. Unearned fees on April 30 are $2,500.

Step 5. Preparing an Optional End-of-Period Spreadsheet

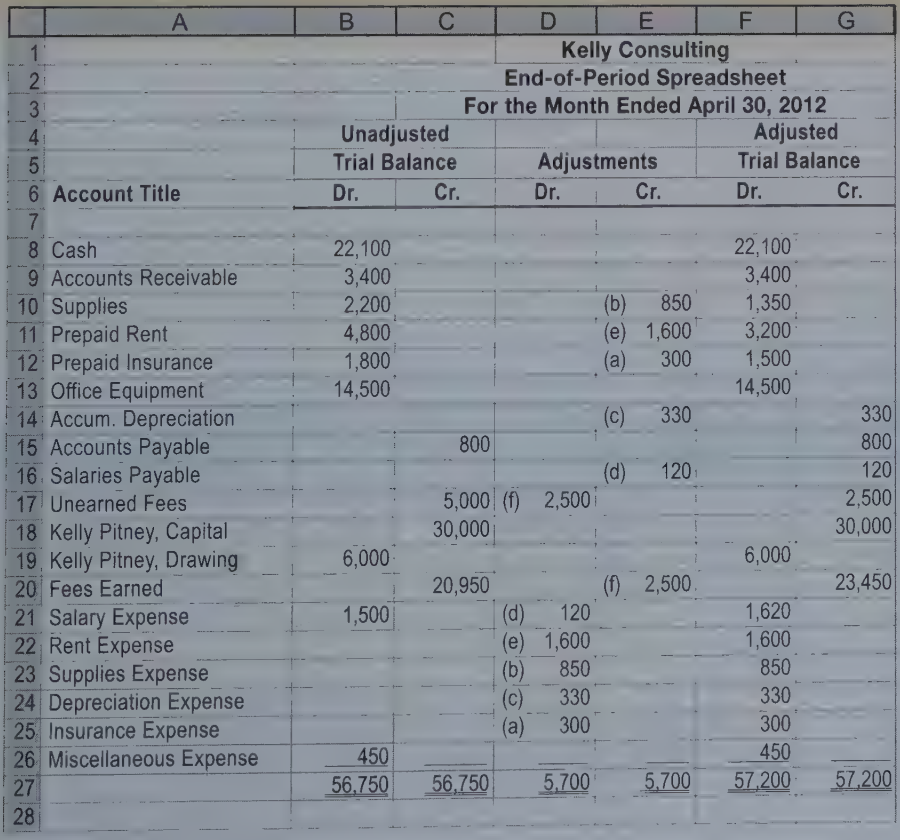
Although an end-of-period spreadsheet is not required, it is useful in showing the flow of accounting information from the unadjusted trial balance to the adjusted trial balance. In addition, an end-of-period spreadsheet is useful in analyzing the impact of proposed adjustments on the financial statements. The end-of-period spreadsheet for Kelly Consulting is shown in Exhibit 11.

Step 6. Journalizing and Posting Adjusting Entries

Based on the adjustment data shown in Step 4, adjusting entries for Kelly Consulting are prepared as shown in Exhibit 12. Each adjusting entry affects at least one income statement account and one balance sheet account. Explanations for each adjustment including any computations are normally included with each adjusting entry.

EXHIBIT 11

End-of-Period Spreadsheet, Kelly Consulting



	A	B	C	D	E	F	G
1				Kelly Consulting			
2				End-of-Period Spreadsheet			
3			For the Month Ended April 30, 2012				
4		Unadjusted				Adjusted	
5		Trial Balance		Adjustments		Trial Balance	
6	Account Title	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
7							
8	Cash	22,100				22,100	
9	Accounts Receivable	3,400				3,400	
10	Supplies	2,200			(b) 850	1,350	
11	Prepaid Rent	4,800			(e) 1,600	3,200	
12	Prepaid Insurance	1,800			(a) 300	1,500	
13	Office Equipment	14,500				14,500	
14	Accum. Depreciation				(c) 330		330
15	Accounts Payable		800				800
16	Salaries Payable				(d) 120		120
17	Unearned Fees		5,000	(f) 2,500			2,500
18	Kelly Pitney, Capital		30,000				30,000
19	Kelly Pitney, Drawing	6,000				6,000	
20	Fees Earned		20,950		(f) 2,500		23,450
21	Salary Expense	1,500		(d) 120		1,620	
22	Rent Expense			(e) 1,600		1,600	
23	Supplies Expense			(b) 850		850	
24	Depreciation Expense			(c) 330		330	
25	Insurance Expense			(a) 300		300	
26	Miscellaneous Expense	450				450	
27		56,750	56,750	5,700	5,700	57,200	57,200
28							

EXHIBIT 12

Adjusting Entries, Kelly Consulting

Journal Page [illegible]

Date		Description	Post. Ref.	Debit	Credit
		Adjusting Entries			
2012 Apr.	30	Insurance Expense	55	300	
		Prepaid Insurance	16		300
		Expired Insurance.			
	30	Supplies Expense	53	850	
		Supplies	14		850
		Supplies used ($2,200 – $1,350).			
	30	Depreciation Expense	54	330	
		Accumulated Depreciation	19		330
		Depreciation of office equipment.			
	30	Salary Expense	51	120	
		Salaries Payable	22		120
		Accrued salary.			
	30	Rent Expense	52	1,600	
		Prepaid Rent	15		1,600
		Rent expired during April.			
	30	Unearned Fees	23	2,500	
		Fees Earned	41		2,500
		Fees earned ($5,000 – $2,500).			

Each of the adjusting entries shown in Exhibit 12 is posted to Kelly Consulting's ledger shown in Exhibit 17 on pages 174–175. The adjusting entries are identified in the ledger as "Adjusting."

Step 7. Preparing an Adjusted Trial Balance

After the adjustments have been journalized and posted, an adjusted trial balance is prepared to verify the equality of the total of the debit and credit balances. This is the last step before preparing the financial statements. If the adjusted trial balance does not balance, an error has occurred and must be found and corrected. The adjusted trial balance for Kelly Consulting as of April 30, 2012, is shown in Exhibit 13.

Step 8. Preparing the Financial Statements

The most important outcome of the accounting cycle is the financial statements. The income statement is prepared first, followed by the statement of owner's equity and then the balance sheet. The statements can be prepared directly from the adjusted trial balance, the end-of-period spreadsheet, or the ledger. The net income or net loss shown on the income statement is reported on the statement of owner's equity along with any additional investments by the owner and any withdrawals. The ending owner's capital is reported on the balance sheet and is added with total liabilities to equal total assets.

The financial statements for Kelly Consulting are shown in Exhibit 14. Kelly Consulting earned net income of $18,300 for April. As of April 30, 2012, Kelly Consulting has total assets of $45,720, total liabilities of $3,420, and total owner's equity of $42,300.

EXHIBIT 13

Adjusted Trial Balance, Kelly Consulting

Kelly Consulting
Adjusted Trial Balance
April 30, 2012

	Debit Balances	Credit Balances
Cash	22,100	
Accounts Receivable	3,400	
Supplies	1,350	
Prepaid Rent	3,200	
Prepaid Insurance	1,500	
Office Equipment	14,500	
Accumulated Depreciation		330
Accounts Payable		800
Salaries Payable		120
Unearned Fees		2,500
Kelly Pitney, Capital		30,000
Kelly Pitney, Drawing	6,000	
Fees Earned		23,450
Salary Expense	1,620	
Rent Expense	1,600	
Supplies Expense	850	
Depreciation Expense	330	
Insurance Expense	300	
Miscellaneous Expense	450	
	57,200	57,200

EXHIBIT 14

Financial Statements, Kelly Consulting

Kelly Consulting
Income Statement
For the Month Ended April 30, 2012

Fees earned		$23,450
Expenses:		
Salary expense	$1,620	
Rent expense	1,600	
Supplies expense	850	
Depreciation expense	330	
Insurance expense	300	
Miscellaneous expense	450	
Total expenses		5,150
Net income		$18,300

Kelly Consulting
Statement of Owner's Equity
For the Month Ended April 30, 2012

Kelly Pitney, capital, April 1, 2012		$ 0
Investment during the month	$30,000	
Net income for the month	18,300	
	$48,300	
Less withdrawals	6,000	
Increase in owner's equity		42,300
Kelly Pitney, capital, April 30, 2012		$42,300

(continued)

EXHIBIT 14 Financial Statements, Kelly Consulting (*concluded*)

Kelly Consulting
Balance Sheet
April 30, 2012

Assets			Liabilities		
Current assets:			Current liabilities:		
Cash	$22,100		Accounts payable	$ 800	
Accounts receivable	3,400		Salaries payable	120	
Supplies	1,350		Unearned fees	2,500	
Prepaid rent	3,200		Total liabilities		$ 3,420
Prepaid insurance	1,500	$31,550			
Total current assets					
Property, plant, and equipment:					
Office equipment	$14,500				
Less accumulated depreciation	330		**Owner's Equity**		
Total property, plant, and equipment		14,170	Kelly Pitney, capital		42,300
Total assets		$45,720	Total liabilities and owner's equity		$45,720

Step 9. Journalizing and Posting Closing Entries

As described earlier in this chapter, four closing entries are required at the end of an accounting period. These four closing entries are as follows:

1. Debit each revenue account for its balance and credit Income Summary for the total revenue.
2. Credit each expense account for its balance and debit Income Summary for the total expenses.
3. Debit Income Summary for its balance and credit the owner's capital account.
4. Debit the owner's capital account for the balance of the drawing account and credit the drawing account.

The four closing entries for Kelly Consulting are shown in Exhibit 15. The closing entries are posted to Kelly Consulting's ledger as shown in Exhibit 17 (pages 174–175). After the closing entries are posted, Kelly Consulting's ledger has the following characteristics:

1. The balance of Kelly Pitney, Capital of $42,300 agrees with the amount reported on the statement of owner's equity and the balance sheet.
2. The revenue, expense, and drawing accounts will have zero balances.

The closing entries are normally identified in the ledger as "Closing." In addition, a line is often inserted in both balance columns after a closing entry is posted. This separates next period's revenue, expense, and withdrawal transactions from those of the current period.

Step 10. Preparing a Post-Closing Trial Balance

A post-closing trial balance is prepared after the closing entries have been posted. The purpose of the post-closing trial balance is to verify that the ledger is in balance at the beginning of the next period. The accounts and amounts in the post-closing trial balance should agree exactly with the accounts and amounts listed on the balance sheet at the end of the period.

EXHIBIT 15

Closing Entries, Kelly Consulting

Journal *Page 4*

Date		Description	Post. Ref.	Debit	Credit
		Closing Entries			
2012 Apr.	30	Fees Earned	41	23,450	
		Income Summary	33		23,450
	30	Income Summary	33	5,150	
		Salary Expense	51		1,620
		Rent Expense	52		1,600
		Supplies Expense	53		850
		Depreciation Expense	54		330
		Insurance Expense	55		300
		Miscellaneous Expense	59		450
	30	Income Summary	33	18,300	
		Kelly Pitney, Capital	31		18,300
	30	Kelly Pitney, Capital	31	6,000	
		Kelly Pitney, Drawing	32		6,000

The post-closing trial balance for Kelly Consulting is shown in Exhibit 16. The balances shown in the post-closing trial balance are taken from the ending balances in the ledger shown in Exhibit 17. These balances agree with the amounts shown on Kelly Consulting's balance sheet in Exhibit 14.

EXHIBIT 16

Post-Closing Trial Balance, Kelly Consulting

Kelly Consulting
Post-Closing Trial Balance
April 30, 2012

	Debit Balances	Credit Balances
Cash	22,100	
Accounts Receivable	3,400	
Supplies	1,350	
Prepaid Rent	3,200	
Prepaid Insurance	1,500	
Office Equipment	14,500	
Accumulated Depreciation		330
Accounts Payable		800
Salaries Payable		120
Unearned Fees		2,500
Kelly Pitney, Capital		42,300
	46,050	46,050

EXHIBIT 17 Ledger, Kelly Consulting

Ledger

Account *Cash* Account No. 11

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2012						
Apr. 1		1	13,100		13,100	
1		1		4,800	8,300	
2		1		1,800	6,500	
4		1	5,000		11,500	
6		1	1,800		13,300	
10		1		120	13,180	
12		1		1,200	11,980	
14		1		750	11,230	
17		2	6,250		17,480	
18		2		800	16,680	
24		2	3,850		20,530	
26		2	5,600		26,130	
27		2		750	25,380	
29		2		130	25,250	
30		2		200	25,050	
30		2	3,050		28,100	
30		2		6,000	22,100	

Account *Accounts Receivable* Account No. 12

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2012						
Apr. 1		1	3,000		3,000	
6		1		1,800	1,200	
12		1	4,200		5,400	
20		2	2,100		7,500	
26		2		5,600	1,900	
30		2	1,500		3,400	

Account *Supplies* Account No. 14

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2012						
Apr. 1		1	1,400		1,400	
18		2	800		2,200	
30	Adjusting	3		850	1,350	

Account *Prepaid Rent* Account No. 15

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2012						
Apr. 1		1	4,800		4,800	
30	Adjusting	3		1,600	3,200	

Account *Prepaid Insurance* Account No. 16

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2012						
Apr. 2		1	1,800		1,800	
30	Adjusting	3		300	1,500	

Account *Office Equipment* Account No. 18

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2012						
Apr. 1		1	12,500		12,500	
5		1	2,000		14,500	

Account *Accumulated Depreciation* Account No. 19

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2012						
Apr. 30	Adjusting	3		330		330

Account *Accounts Payable* Account No. 21

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2012						
Apr. 5		1		2,000		2,000
12		1	1,200			800

Account *Salaries Payable* Account No. 22

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2012						
Apr. 30	Adjusting	3		120		120

Account *Unearned Rent* Account No. 23

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2012						
Apr. 4		1		5,000		5,000
30	Adjusting	3	2,500			2,500

Account *Kelly Pitney, Capital* Account No. 31

Date	Item	Post. Ref.	Debit	Credit	Balance	
					Debit	Credit
2012						
Apr. 1		1		30,000		30,000
30	Closing	4		18,300		48,300
30	Closing	4	6,000			42,300

EXHIBIT 17 **Ledger, Kelly Consulting (*concluded*)**

Account *Kelly Pitney, Drawing* Account No. 32

					Balance	
Date	Item	Post. Ref.	Debit	Credit	Debit	Credit
2012 Apr. 30		2	6,000		6,000	
30	Closing	4		6,000	—	—

Account *Income Summary* Account No. 33

					Balance	
Date	Item	Post. Ref.	Debit	Credit	Debit	Credit
2012 Apr. 30	Closing	4		23,450		23,450
30	Closing	4	5,150			18,300
30	Closing	4	18,300		—	—

Account *Fees Earned* Account No. 41

					Balance	
Date	Item	Post. Ref.	Debit	Credit	Debit	Credit
2012 Apr. 12		1		4,200		4,200
17		2		6,250		10,450
20		2		2,100		12,550
24		2		3,850		16,400
30		2		3,050		19,450
30		2		1,500		20,950
30	Adjusting	3		2,500		23,450
30	Closing	4	23,450		—	—

Account *Salary Expense* Account No. 51

					Balance	
Date	Item	Post. Ref.	Debit	Credit	Debit	Credit
2012 Apr. 14		1	750		750	
27		2	750		1,500	
30	Adjusting	3	120		1,620	
30	Closing	4		1,620	—	—

Account *Rent Expense* Account No. 52

					Balance	
Date	Item	Post. Ref.	Debit	Credit	Debit	Credit
2012 Apr. 30	Adjusting	3	1,600		1,600	
30	Closing	4		1,600	—	—

Account *Supplies Expense* Account No. 53

					Balance	
Date	Item	Post. Ref.	Debit	Credit	Debit	Credit
2012 Apr. 30	Adjusting	3	850		850	
30	Closing	4		850	—	—

Account *Depreciation Expense* Account No. 54

					Balance	
Date	Item	Post. Ref.	Debit	Credit	Debit	Credit
2012 Apr. 30	Adjusting	3	330		330	
30	Closing	4		330	—	—

Account *Insurance Expense* Account No. 55

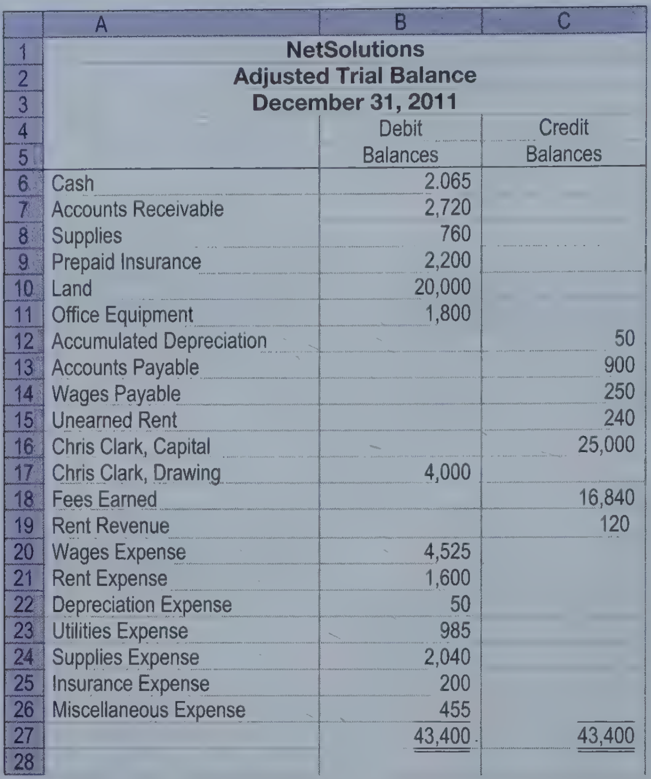
					Balance	
Date	Item	Post. Ref.	Debit	Credit	Debit	Credit
2012 Apr. 30	Adjusting	3	300		300	
30	Closing	4		300	—	—

Account *Miscellaneous Expense* Account No. 59

					Balance	
Date	Item	Post. Ref.	Debit	Credit	Debit	Credit
2012 Apr. 10		1	120		120	
29		2	130		250	
30		2	200		450	
30	Closing	4		450	—	—

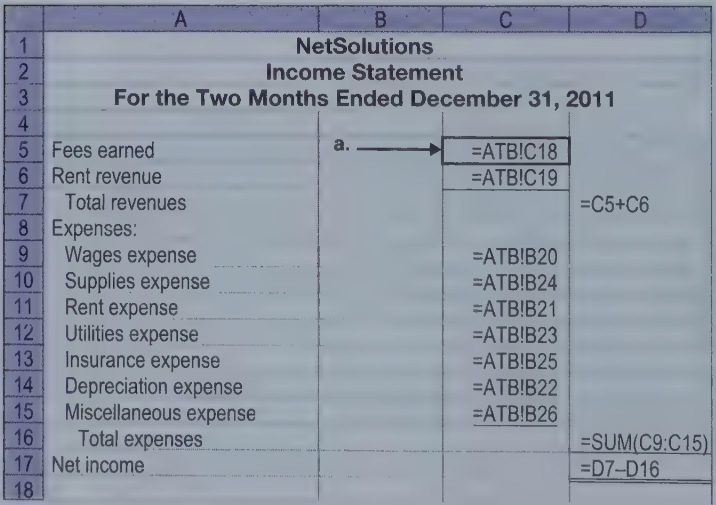
excel success

The financial statements can be developed on a spreadsheet using the cell references from the adjusted trial balance. The adjusted trial balance for NetSolutions is prepared in a worksheet from Chapter 3, labeled ATB, as follows:



	A	B	C
1	NetSolutions		
2	Adjusted Trial Balance		
3	December 31, 2011		
4		Debit	Credit
5		Balances	Balances
6	Cash	2.065	
7	Accounts Receivable	2,720	
8	Supplies	760	
9	Prepaid Insurance	2,200	
10	Land	20,000	
11	Office Equipment	1,800	
12	Accumulated Depreciation		50
13	Accounts Payable		900
14	Wages Payable		250
15	Unearned Rent		240
16	Chris Clark, Capital		25,000
17	Chris Clark, Drawing	4,000	
18	Fees Earned		16,840
19	Rent Revenue		120
20	Wages Expense	4,525	
21	Rent Expense	1,600	
22	Depreciation Expense	50	
23	Utilities Expense	985	
24	Supplies Expense	2,040	
25	Insurance Expense	200	
26	Miscellaneous Expense	455	
27		43,400	43,400
28			

The financial statements are prepared in a separate worksheet labeled FS. Each financial statement could have its own separate worksheet; however, we'll combine the financial statements on to one worksheet in this text.

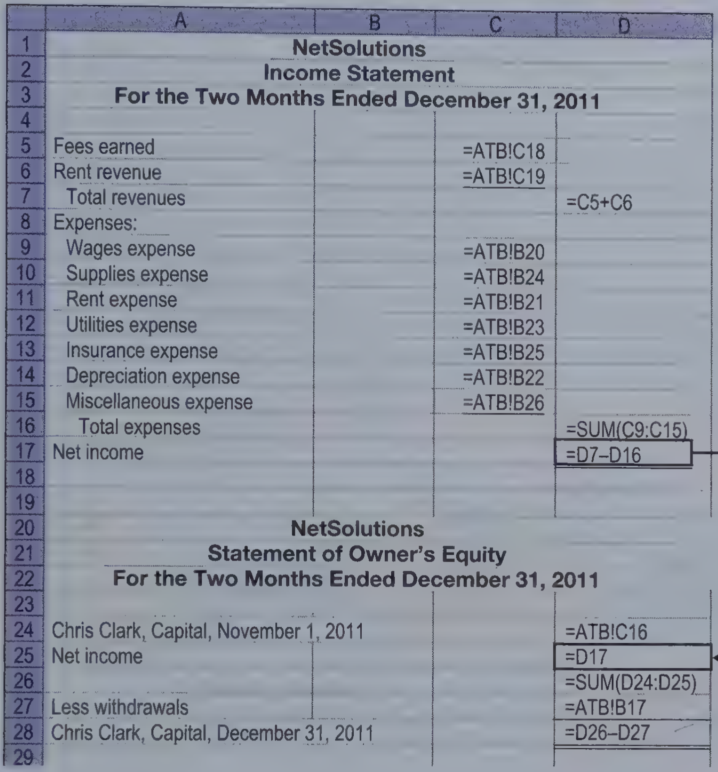


	A	B	C	D
1	NetSolutions			
2	Income Statement			
3	For the Two Months Ended December 31, 2011			
4				
5	Fees earned	a.	=ATB!C18	
6	Rent revenue		=ATB!C19	
7	Total revenues			=C5+C6
8	Expenses:			
9	Wages expense		=ATB!B20	
10	Supplies expense		=ATB!B24	
11	Rent expense		=ATB!B21	
12	Utilities expense		=ATB!B23	
13	Insurance expense		=ATB!B25	
14	Depreciation expense		=ATB!B22	
15	Miscellaneous expense		=ATB!B26	
16	Total expenses			=SUM(C9:C15)
17	Net income			=D7–D16
18				

a. The *income statement* is prepared by referencing the appropriate adjusted trial balance cell locations.

For example, insert in cell B5 the adjusted trial balance cell reference for Fees Earned, =ATB!C18. The reference =ATB!C18 tells the spreadsheet software to insert into cell B5 the contents of cell C18 in worksheet ATB. The expenses can be done in the same way. The appropriate arithmetic spreadsheet formulas are entered to calculate the total expenses and net income.

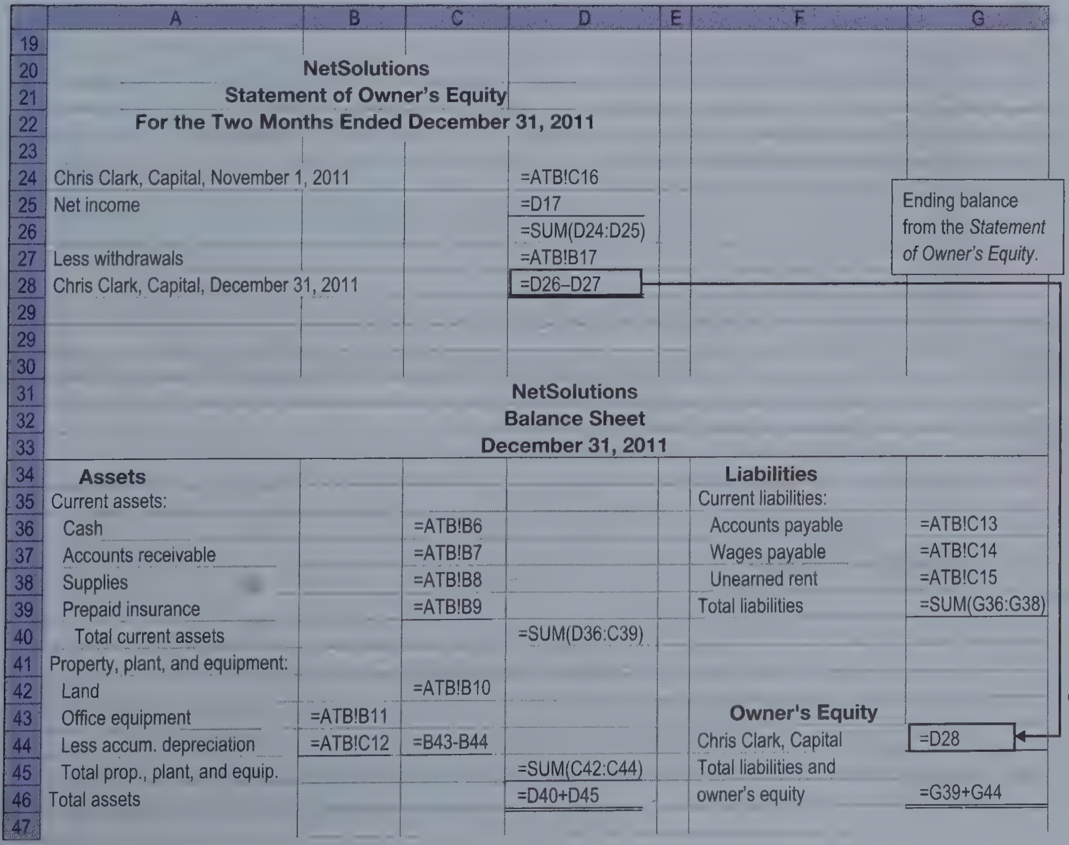
b. The statement of owner's equity is prepared by referencing the ATB for beginning balances; referencing net income from the income statement; and, making the appropriate arithmetic formulas to determine the ending balance of Chris Clark, Capital as follows:



	A	B	C	D
1	**NetSolutions**			
2	**Income Statement**			
3	**For the Two Months Ended December 31, 2011**			
4				
5	Fees earned		=ATB!C18	
6	Rent revenue		=ATB!C19	
7	Total revenues			=C5+C6
8	Expenses:			
9	Wages expense		=ATB!B20	
10	Supplies expense		=ATB!B24	
11	Rent expense		=ATB!B21	
12	Utilities expense		=ATB!B23	
13	Insurance expense		=ATB!B25	
14	Depreciation expense		=ATB!B22	
15	Miscellaneous expense		=ATB!B26	
16	Total expenses			=SUM(C9:C15)
17	Net income			=D7–D16
18				
19				
20	**NetSolutions**			
21	**Statement of Owner's Equity**			
22	**For the Two Months Ended December 31, 2011**			
23				
24	Chris Clark, Capital, November 1, 2011			=ATB!C16
25	Net income			=D17
26				=SUM(D24:D25)
27	Less withdrawals			=ATB!B17
28	Chris Clark, Capital, December 31, 2011			=D26–D27
29				

b. Net income cell reference

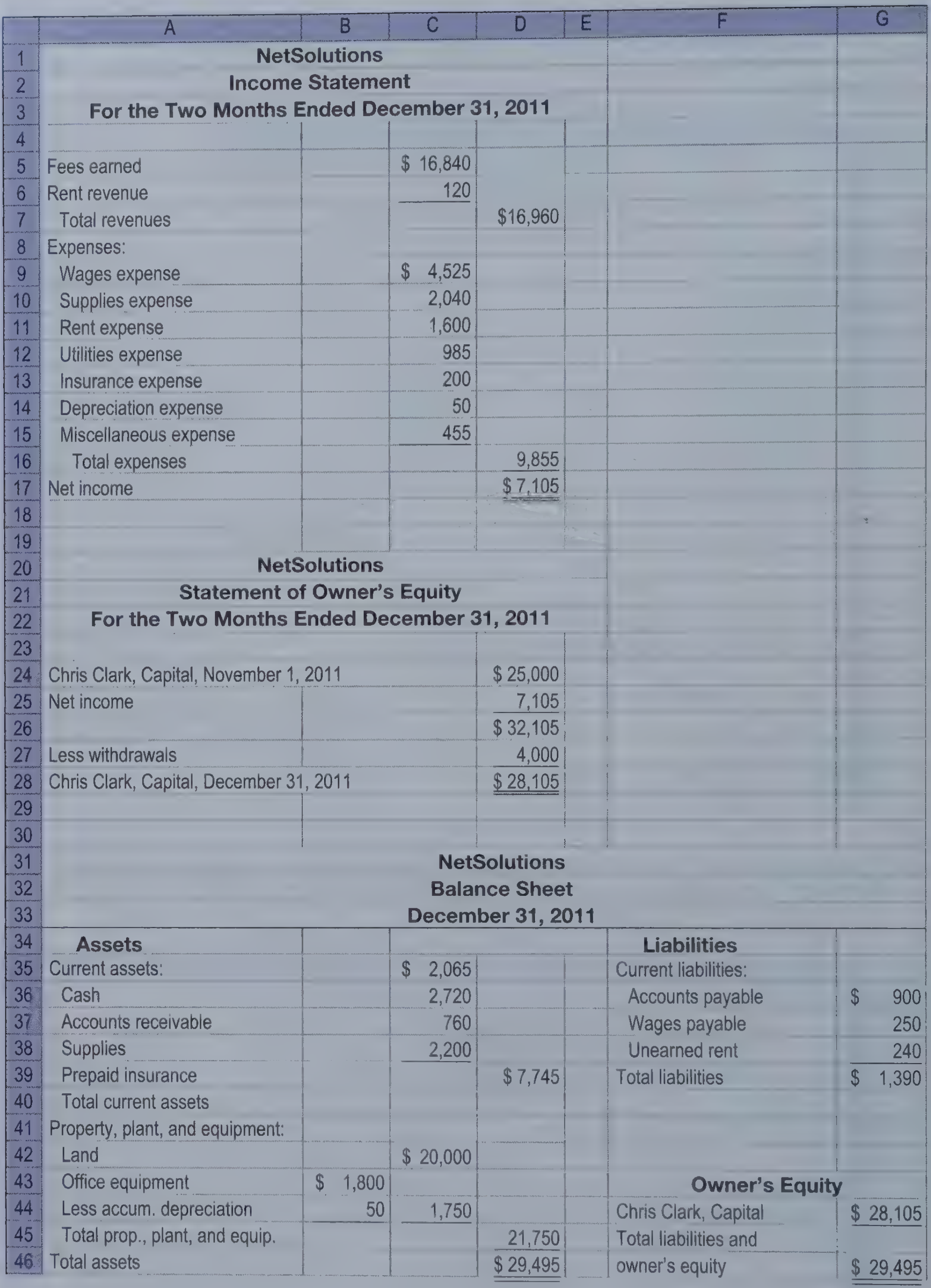
c. The balance sheet is prepared by referencing the adjusted trial balance for all account balances except for the ending balance of the owner's capital account. The owner's capital account in cell G44 references the ending balance of the Statement of Owner's Equity, =D28. Appropriate spreadsheet formulas are then entered for subtotals and totals, as follows:



	A	B	C	D	E	F	G
19							
20	**NetSolutions**						
21	**Statement of Owner's Equity**						
22	**For the Two Months Ended December 31, 2011**						
23							
24	Chris Clark, Capital, November 1, 2011			=ATB!C16			
25	Net income			=D17			
26				=SUM(D24:D25)			
27	Less withdrawals			=ATB!B17			
28	Chris Clark, Capital, December 31, 2011			=D26–D27			
29							
29							
30							
31				**NetSolutions**			
32				**Balance Sheet**			
33				**December 31, 2011**			
34	**Assets**					**Liabilities**	
35	Current assets:					Current liabilities:	
36	Cash		=ATB!B6			Accounts payable	=ATB!C13
37	Accounts receivable		=ATB!B7			Wages payable	=ATB!C14
38	Supplies		=ATB!B8			Unearned rent	=ATB!C15
39	Prepaid insurance		=ATB!B9			Total liabilities	=SUM(G36:G38)
40	Total current assets			=SUM(D36:C39)			
41	Property, plant, and equipment:						
42	Land		=ATB!B10				
43	Office equipment	=ATB!B11				**Owner's Equity**	
44	Less accum. depreciation	=ATB!C12	=B43-B44			Chris Clark, Capital	=D28
45	Total prop., plant, and equip.			=SUM(C42:C44)		Total liabilities and	
46	Total assets			=D40+D45		owner's equity	=G39+G44
47							

Ending balance from the *Statement of Owner's Equity*.

c.



	A	B	C	D	E	F	G
1	**NetSolutions**						
2	**Income Statement**						
3	**For the Two Months Ended December 31, 2011**						
4							
5	Fees earned		$ 16,840				
6	Rent revenue		120				
7	Total revenues			$16,960			
8	Expenses:						
9	Wages expense		$ 4,525				
10	Supplies expense		2,040				
11	Rent expense		1,600				
12	Utilities expense		985				
13	Insurance expense		200				
14	Depreciation expense		50				
15	Miscellaneous expense		455				
16	Total expenses			9,855			
17	Net income			$ 7,105			
18							
19							
20	**NetSolutions**						
21	**Statement of Owner's Equity**						
22	**For the Two Months Ended December 31, 2011**						
23							
24	Chris Clark, Capital, November 1, 2011			$ 25,000			
25	Net income			7,105			
26				$ 32,105			
27	Less withdrawals			4,000			
28	Chris Clark, Capital, December 31, 2011			$ 28,105			
29							
30							
31				**NetSolutions**			
32				**Balance Sheet**			
33				**December 31, 2011**			
34	**Assets**					**Liabilities**	
35	Current assets:		$ 2,065			Current liabilities:	
36	Cash		2,720			Accounts payable	$ 900
37	Accounts receivable		760			Wages payable	250
38	Supplies		2,200			Unearned rent	240
39	Prepaid insurance			$ 7,745		Total liabilities	$ 1,390
40	Total current assets						
41	Property, plant, and equipment:						
42	Land		$ 20,000				
43	Office equipment	$ 1,800				**Owner's Equity**	
44	Less accum. depreciation	50	1,750			Chris Clark, Capital	$ 28,105
45	Total prop., plant, and equip.			21,750		Total liabilities and	
46	Total assets			$ 29,495		owner's equity	$ 29,495

TryIt Go to the hands-on ***Excel Tutor*** for this example!

OBJ. 6 Explain what is meant by the fiscal year and the natural business year.

Fiscal Year

The annual accounting period adopted by a business is known as its **fiscal year**. Fiscal years begin with the first day of the month selected and end on the last day of the following twelfth month. The period most commonly used is the calendar year. Other periods are not unusual, especially for businesses organized as corporations. For example, a corporation may adopt a fiscal year that ends when business activities have reached the lowest point in its annual operating cycle. Such a fiscal year is

called the **natural business year**. At the low point in its operating cycle, a business has more time to analyze the results of operations and to prepare financial statements.

Because companies with fiscal years often have highly seasonal operations, investors and others should be careful in interpreting partial-year reports for such companies. That is, you should expect the results of operations for these companies to vary significantly throughout the fiscal year.

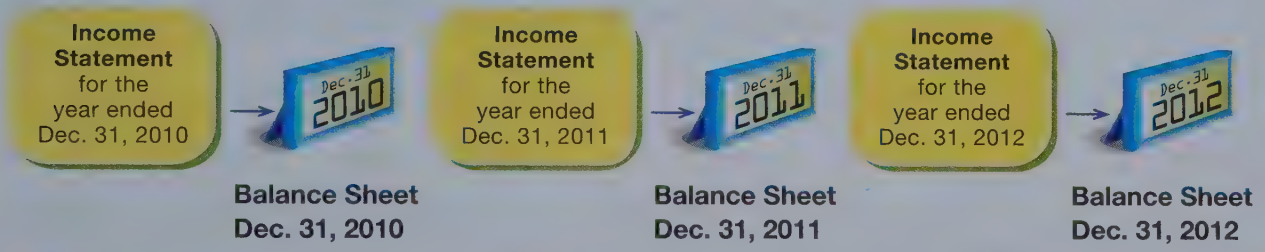
The financial history of a business may be shown by a series of balance sheets and income statements for several fiscal years. If the life of a business is expressed by a line moving from left to right, the series of balance sheets and income statements may be graphed as follows:

Percentage of Companies with Fiscal Years Ending in:

January	5%	July	2%
February	2	August	3
March	3	September	6
April	2	October	3
May	3	November	2
June	6	December	63

Source: *Accounting Trends & Techniques*, 63rd edition, 2009 (New York: American Institute of Certified Public Accountants).

Financial History of a Business



Business Connection

CHOOSING A FISCAL YEAR

CVS Caremark Corporation (CVS) operates over 7,000 pharmacies throughout the United States and fills more than one billion prescriptions annually. CVS recently chose December 31 as its fiscal year-end described as follows:

> *.... our Board of Directors approved a change in our fiscal year-end ... to December 31 of each year to better reflect our position in the health care ... industry.*

In contrast, most large retailers such as Walmart and Target use fiscal years ending January 31, when their operations are the slowest following the December holidays.

Financial Analysis and Interpretation: Working Capital and Current Ratio

Obj. 7 Describe and illustrate the use of working capital and the current ratio in evaluating a company's financial condition.

The ability to convert assets into cash is called **liquidity**, while the ability of a business to pay its debts is called **solvency**. Two financial measures for evaluating a business's short-term liquidity and solvency are working capital and the current ratio.

Working capital is the excess of the current assets of a business over its current liabilities, as shown below.

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

Current assets are more liquid than long-term assets. Thus, an increase in a company's current assets increases or improves its liquidity. An increase in working capital increases or improves liquidity in the sense that current assets are available for uses other than paying current liabilities.

A positive working capital implies that the business is able to pay its current liabilities and is solvent. Thus, an increase in working capital increases or improves a company's solvency.

To illustrate, NetSolutions' working capital at the end of 2011 is $675 as computed below. This amount of working capital implies that NetSolutions is able to pay its current liabilities.

$$\begin{aligned}\text{Working Capital} &= \text{Current Assets} - \text{Current Liabilities}\\ &= \$7{,}745 - \$1{,}390\\ &= \$6{,}355\end{aligned}$$

The **current ratio** is another means of expressing the relationship between current assets and current liabilities. The current ratio is computed by dividing current assets by current liabilities, as shown below.

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

To illustrate, the current ratio for NetSolutions at the end of 2011 is 1.5, computed as follows:

$$\begin{aligned}\text{Current Ratio} &= \frac{\text{Current Assets}}{\text{Current Liabilities}}\\ &= \frac{\$7{,}745}{\$1{,}390}\\ &= 5.6 \text{ (Rounded)}\end{aligned}$$

The current ratio is more useful than working capital in making comparisons across companies or with industry averages. To illustrate, the following data (in millions) were taken from the financial statements of Electronic Arts Inc. and Take-Two Interactive Software, Inc.

	Electronic Arts		Take-Two	
	Mar. 31, 2009	Mar. 31, 2008	Oct. 31, 2009	Oct. 31, 2008
Current assets	$3,120	$3,925	$628	$724
Current liabilities	1,136	1,299	354	365
Working capital	$1,984	$2,626	$274	$359
Current ratio	2.75	3.02	1.77	1.98
Operating income (loss)	($3,120 ÷ $1,136)	($3,925 ÷ $1,299)	($628 ÷ $354)	($724 ÷ $365)

Electronic Arts is larger than Take-Two and has 2009 working capital of $1,984 as compared to Take-Two's 2009 working capital of $274. Such size differences make comparisons across companies difficult. In contrast, the current ratio allows comparability across companies.

To illustrate, Electronic Arts has over seven times more working capital ($1,984) than does Take Two ($274). However, by using the current ratio the changes in liquidity of both companies can be directly compared. Specifically, Electronic Arts' current ratio declined from 3.02 to 2.75, or 0.27. Take Two's current ratio also declined from 1.98 to 1.77, or 0.21. Thus, both companies experienced a small decline in their liquidity in 2009.

Example Exercise 4-6 Working Capital and Current Ratio

OBJ 7

Two income statements for Fortson Company are shown below.

	2012	2011
Current assets	$310,500	$262,500
Current liabilities	172,500	150,000

a. Determine the working capital and current ratio for 2012 and 2011.

b. Does the change in the current ratio from 2011 to 2012 indicate a favorable or an unfavorable trend?

(continued)

Follow My Example 4-6

a.

	2012	2011
Current assets	$310,500	$262,500
Current liabilities	172,500	150,000
Working capital	$138,000	$112,500
Current ratio	1.80	1.75
	($310,500 ÷ $172,500)	($262,500 ÷ $150,000)

b. The change from 1.75 to 1.80 indicates a favorable trend.

Practice Exercises: **PE 4-6A, PE 4-6B**

APPENDIX 1

End-of-Period Spreadsheet (Work Sheet)

Accountants often use working papers for analyzing and summarizing data. Such working papers are not a formal part of the accounting records. This is in contrast to the chart of accounts, the journal, and the ledger, which are essential parts of an accounting system. Working papers are usually prepared by using a computer spreadsheet program such as Microsoft's Excel.™

The end-of-period spreadsheet shown in Exhibit 1 is a working paper used to summarize adjusting entries and their effects on the accounts. As illustrated in the chapter, the financial statements for **NetSolutions** can be prepared directly from the spreadsheet's Adjusted Trial Balance columns.

Some accountants prefer to expand the end-of-period spreadsheet shown in Exhibit 1 to include financial statement columns. Exhibits 18 through 22 illustrate the step-by-step process of how to prepare this expanded spreadsheet. As a basis for illustration, NetSolutions is used.

Step 1. Enter the Title

The spreadsheet is started by entering the following data:

1. Name of the business: *NetSolutions*
2. Type of working paper: *End-of-Period Spreadsheet*
3. The period of time: *For the Two Months Ended December 31, 2011*

Exhibit 18 shows the preceding data entered for NetSolutions.

Step 2. Enter the Unadjusted Trial Balance

Enter the unadjusted trial balance on the spreadsheet. The spreadsheet in Exhibit 18 shows the unadjusted trial balance for NetSolutions at December 31, 2011.

Step 3. Enter the Adjustments

The adjustments for NetSolutions from Chapter 3 are entered in the Adjustments columns, as shown in Exhibit 19. Cross-referencing (by letters) the debit and credit of each adjustment is useful in reviewing the spreadsheet. It is also helpful for identifying the adjusting entries that need to be recorded in the journal. This cross-referencing process is sometimes referred to as *keying* the adjustments.

The adjustments are normally entered in the order in which the data are assembled. If the titles of the accounts to be adjusted do not appear in the unadjusted trial balance, the accounts are inserted in their proper order in the Account Title column.

The adjusting entries for NetSolutions entered in the Adjustments columns are:

Turn Exhibit 19

(a) **Supplies**. The supplies account has a debit balance of $2,000. The cost of the supplies on hand at the end of the period is $760. The supplies expense for December is the difference between the two amounts, or $1,240 ($2,000 – $760). The adjustment is entered as (1) $1,240 in the Adjustments Debit column on the same line as Supplies Expense and (2) $1,240 in the Adjustments Credit column on the same line as Supplies.

(b) **Prepaid Insurance**. The prepaid insurance account has a debit balance of $2,400. This represents the prepayment of insurance for 12 months beginning Dec. 1. Thus, the insurance expense for December is $200 ($2,400 ÷ 12). The adjustment is entered as (1) $200 in the Adjustments Debit column on the same line as Insurance Expense and (2) $200 in the Adjustments Credit column on the same line as Prepaid Insurance.

(c) **Unearned Rent**. The unearned rent account had a credit balance of $360. This balance represents the receipt of three months' rent, beginning with December. Thus, the rent revenue for December is $120 ($360 ÷ 3). The adjustment is entered as (1) $120 in the Adjustments Debit column on the same line as Unearned Rent and (2) $120 in the Adjustments Credit column on the same line as Rent Revenue.

(d) **Accrued Fees**. Fees accrued at the end of December but not recorded total $500. This amount is an increase in an asset and an increase in revenue. The adjustment is entered as (1) $500 in the Adjustments Debit column on the same line as Accounts Receivable and (2) $500 in the Adjustments Credit column on the same line as Fees Earned.

(e) **Wages**. Wages accrued but not paid at the end of December total $250. This amount is an increase in expenses and an increase in liabilities. The adjustment is entered as (1) $250 in the Adjustments Debit column on the same line as Wages Expense and (2) $250 in the Adjustments Credit column on the same line as Wages Payable.

(f) **Depreciation**. Depreciation of the office equipment is $50 for December. The adjustment is entered as (1) $50 in the Adjustments Debit column on the same line as Depreciation Expense and (2) $50 in the Adjustments Credit column on the same line as Accumulated Depreciation.

After the adjustments have been entered, the Adjustments columns are totaled to verify the equality of the debits and credits. The total of the Debit column must equal the total of the Credit column.

Step 4. Enter the Adjusted Trial Balance

Turn Exhibit 20

The adjusted trial balance is entered by combining the adjustments with the unadjusted balances for each account. The adjusted amounts are then extended to the Adjusted Trial Balance columns, as shown in Exhibit 20.

To illustrate, the cash amount of $2,065 is extended to the Adjusted Trial Balance Debit column since no adjustments affected Cash. Accounts Receivable has an initial balance of $2,220 and a debit adjustment of $500. Thus, $2,720 ($2,220 + $500) is entered in the Adjusted Trial Balance Debit column for Accounts Receivable. The same process continues until all account balances are extended to the Adjusted Trial Balance columns.

After the accounts and adjustments have been extended, the Adjusted Trial Balance columns are totaled to verify the equality of debits and credits. The total of the Debit column must equal the total of the Credit column.

Step 5. Extend the Accounts to the Income Statement and Balance Sheet Columns

Turn Exhibit 21

The adjusted trial balance amounts are extended to the Income Statement and Balance Sheet columns. The amounts for revenues and expenses are extended to the Income Statement column. The amounts for assets, liabilities, owner's capital, and drawing are extended to the Balance Sheet columns.[3]

---

[3] The balances of the owner's capital and drawing accounts are extended to the Balance Sheet columns because the spreadsheet does not have separate Statement of Owner's Equity columns.

The first account listed in the Adjusted Trial Balance columns is Cash with a debit balance of $2,065. Cash is an asset, is listed on the balance sheet, and has a debit balance. Therefore, $2,065 is extended to the Balance Sheet Debit column. The Fees Earned balance of $16,840 is extended to the Income Statement Credit column. The same process continues until all account balances have been extended to the proper columns, as shown in Exhibit 21.

Turn Exhibit 21

Step 6. Total the Income Statement and Balance Sheet Columns, Compute the Net Income or Net Loss, and Complete the Spreadsheet

After the account balances are extended to the Income Statement and Balance Sheet columns, each of the columns is totaled. The difference between the two Income Statement column totals is the amount of the net income or the net loss for the period. This difference (net income or net loss) will also be the difference between the two Balance Sheet column totals.

If the Income Statement Credit column total (total revenue) is greater than the Income Statement Debit column total (total expenses), the difference is the net income. If the Income Statement Debit column total is greater than the Income Statement Credit column total, the difference is a net loss.

As shown in Exhibit 22, the total of the Income Statement Credit column is $16,960, and the total of the Income Statement Debit column is $9,855. Thus, the net income for NetSolutions is $7,105 as shown below.

Turn Exhibit 22

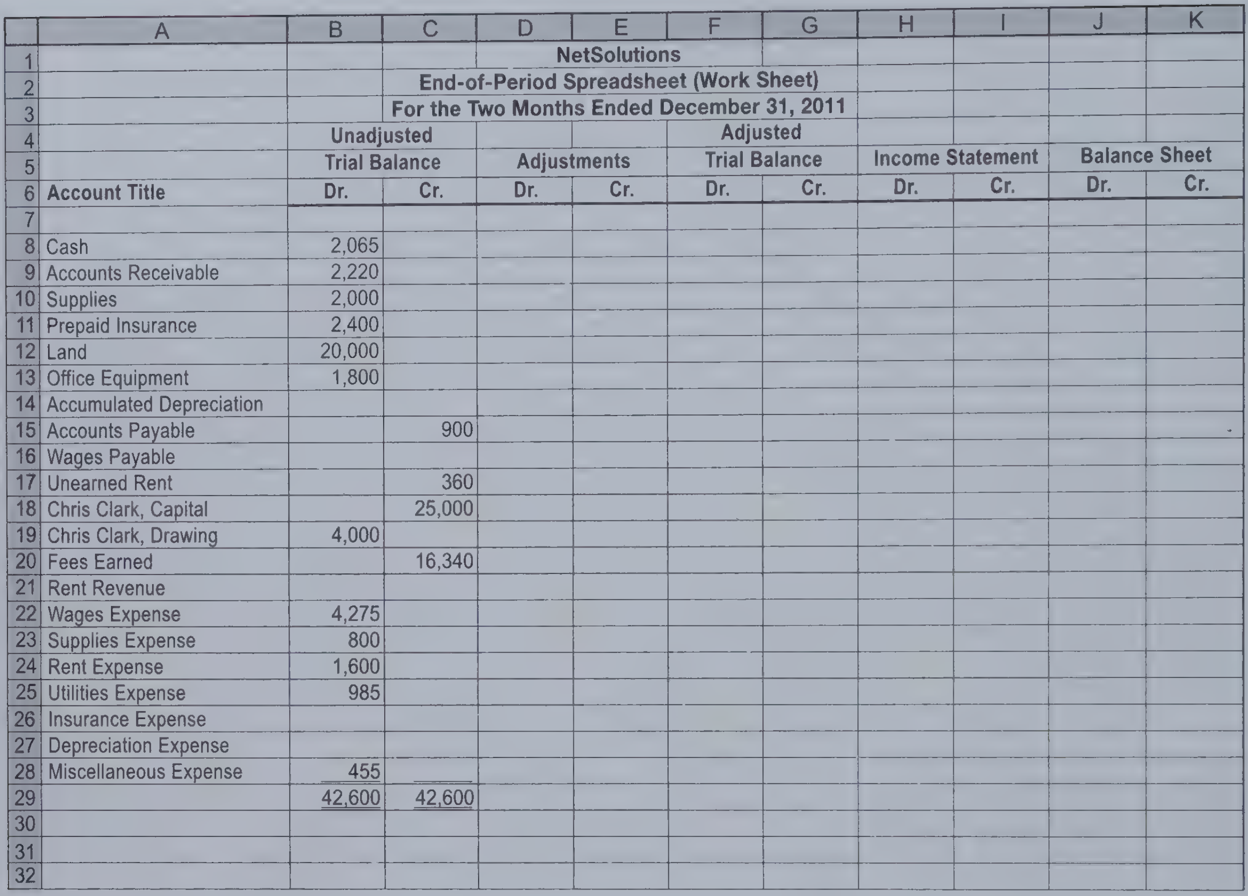
Total of Income Statement Credit column (revenues)	$16,960
Total of Income Statement Debit column (expenses)	9,855
Net income (excess of revenues over expenses)	$ 7,105

The amount of the net income, $7,105, is entered in the Income Statement Debit column and the Balance Sheet Credit column. *Net income* is also entered in the Account Title column. Entering the net income of $7,105 in the Balance Sheet Credit column has the effect of transferring the net balance of the revenue and expense accounts to the owner's capital account.

If there was a net loss instead of net income, the amount of the net loss would be entered in the Income Statement Credit column and the Balance Sheet Debit column. *Net loss* would also be entered in the Account Title column.

After the net income or net loss is entered on the spreadsheet, the Income Statement and Balance Sheet columns are totaled. The totals of the two Income Statement columns must now be equal. The totals of the two Balance Sheet columns must also be equal.

EXHIBIT 18 Spreadsheet (Work Sheet) with Unadjusted Trial Balance Entered



	A	B	C	D	E	F	G	H	I	J	K
1				NetSolutions							
2				End-of-Period Spreadsheet (Work Sheet)							
3				For the Two Months Ended December 31, 2011							
4		Unadjusted				Adjusted					
5		Trial Balance		Adjustments		Trial Balance		Income Statement		Balance Sheet	
6	Account Title	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
7											
8	Cash	2,065									
9	Accounts Receivable	2,220									
10	Supplies	2,000									
11	Prepaid Insurance	2,400									
12	Land	20,000									
13	Office Equipment	1,800									
14	Accumulated Depreciation										
15	Accounts Payable		900								
16	Wages Payable										
17	Unearned Rent		360								
18	Chris Clark, Capital		25,000								
19	Chris Clark, Drawing	4,000									
20	Fees Earned		16,340								
21	Rent Revenue										
22	Wages Expense	4,275									
23	Supplies Expense	800									
24	Rent Expense	1,600									
25	Utilities Expense	985									
26	Insurance Expense										
27	Depreciation Expense										
28	Miscellaneous Expense	455									
29		42,600	42,600								
30											
31											
32											

The spreadsheet (work sheet) is used for summarizing the effects of adjusting entries. It also aids in preparing financial statements.

A spreadsheet can be used to prepare the income statement, the statement of owner's equity, and the balance sheet from the adjusted trial balance, as shown in the Excel Success section. The Excel Success sections from Chapters 2, 3, and 4 can be combined to perform steps 1–8 (excluding 5) of the accounting cycle, as diagramed in Exhibit 8 as follows:

Chapter 2:

1. Analyze and prepare journal entries in the spreadsheet.
2. Post transactions to spreadsheet ledger accounts.
3. Prepare in a spreadsheet an unadjusted trial balance from ledger balances.

Chapter 3:

4. Assemble and analyze adjustment data.
6. Journalize and post adjusting entries to the spreadsheet ledger accounts.
7. Prepare in a spreadsheet the adjusted trial balance from the adjusted ledger balances.

Chapter 4:

8. Prepare financial statements from the adjusted trial balance.

Thus, the spreadsheet can be used as an alternative to the manual accounting system. An accounting system on a spreadsheet has the advantage of minimizing mathematical errors and simplifying changes and corrections.

A spreadsheet can also be used as a multi-column worksheet summarizing the flow of adjustments to the final statements, as shown in Exhibit 2. The Exhibit 2 spreadsheet is not part of the formal accounting system, but can be used as an optional step within the accounting cycle, as shown in step five of Exhibit 8.

In the next chapter we will introduce accounting system approaches that are used with more complex businesses.

At a Glance 4

OBJ. 1 Describe the flow of accounting information from the unadjusted trial balance into the adjusted trial balance and financial statements.

Key Points Exhibit 1 illustrates the end-of-period process by which accounts are adjusted and how the adjusted accounts flow into the financial statements.

Learning Outcomes	Example Exercises	Practice Exercises
• Using an end-of-period spreadsheet, describe how the unadjusted trial balance accounts are affected by adjustments and how the adjusted trial balance accounts flow into the income statement and balance sheet.	EE4-1	PE4-1A, 4-1B

OBJ. 2 Prepare financial statements from adjusted account balances.

Key Points Using the end-of-period spreadsheet shown in Exhibit 1, the income statement and balance sheet for NetSolutions can be prepared. The statement of owner's equity is prepared by referring to transactions that have been posted to owner's capital accounts in the ledger. A classified balance sheet has sections for current assets; property, plant, and equipment; current liabilities; long-term liabilities; and owner's equity.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe how the net income or net loss from the period can be determined from an end-of-period spreadsheet.		
• Prepare an income statement, statement of owner's equity, and a balance sheet.	EE4-2	PE4-2A, 4-2B
• Indicate how accounts would be reported on a classified balance sheet.	EE4-3	PE4-3A, 4-3B

OBJ. 3 Prepare closing entries.

Key Points Four entries are required in closing the temporary accounts. The first entry closes the revenue accounts to Income Summary. The second entry closes the expense accounts to Income Summary. The third entry closes the balance of Income Summary (net income or net loss) to the owner's capital account. The fourth entry closes the drawing account to the owner's capital account.

After the closing entries have been posted to the ledger, the balance in the capital account agrees with the amount reported on the statement of owner's equity and balance sheet. In addition, the revenue, expense, and drawing accounts will have zero balances.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Prepare the closing entry for revenues.	**EE4-4**	**PE4-4A, 4-4B**
• Prepare the closing entry for expenses.	**EE4-4**	**PE4-4A, 4-4B**
• Prepare the closing entry for transferring the balance of Income Summary to the owner's capital account.	**EE4-4**	**PE4-4A, 4-4B**
• Prepare the closing entry for the owner's drawing account.	**EE4-4**	**PE4-4A, 4-4B**

OBJ. 4 Describe the accounting cycle.

Key Points The 10 basic steps of the accounting cycle are as follows:

1. Transactions are analyzed and recorded in the journal.
2. Transactions are posted to the ledger.
3. An unadjusted trial balance is prepared.
4. Adjustment data are assembled and analyzed.
5. An optional end-of-period spreadsheet is prepared.
6. Adjusting entries are journalized and posted to the ledger.
7. An adjusted trial balance is prepared.
8. Financial statements are prepared.
9. Closing entries are journalized and posted to the ledger.
10. A post-closing trial balance is prepared.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• List the 10 steps of the accounting cycle.		
• Determine whether any steps are out of order in a listing of accounting cycle steps.		
• Determine whether there are any missing steps in a listing of accounting cycle steps.	**EE4-5**	**PE4-5A, 4-5B**

OBJ. 5 Illustrate the accounting cycle for one period.

Key Points The complete accounting cycle for Kelly Consulting for the month of April is described and illustrated on pages 165–175.

Learning Outcomes

- Complete the accounting cycle for a period from beginning to end.

OBJ. 6 Explain what is meant by the fiscal year and the natural business year.

Key Points The annual accounting period adopted by a business is its fiscal year. A company's fiscal year that ends when business activities have reached the lowest point in its annual operating cycle is called the natural business year.

Learning Outcomes

- Explain why companies use a fiscal year that is different from the calendar year.

OBJ. 7 Describe and illustrate the use of working capital and the current ratio in evaluating a company's financial condition.

Key Points The ability to convert assets into cash is called liquidity, while the ability of a business to pay its debts is called solvency. Two financial measures for evaluating a business's short-term liquidity and solvency are working capital and the current ratio. Working capital is computed by subtracting current liabilities from current assets. An excess of current assets over current liabilities implies that the business is able to pay its current liabilities. The current ratio is computed by dividing current assets by current liabilities. The current ratio is more useful than working capital in making comparisons across companies or with industry averages.

Learning Outcomes	Example Exercises	Practice Exercises
• Define liquidity and solvency.		
• Compute working capital.	EE4-6	PE4-6A, 4-6B
• Compute the current ratio.	EE4-6	PE4-6A, 4-6B

Key Terms

accounting cycle (164)
clearing account (159)
closing entries (158)
closing process (158)
closing the books (158)
current assets (157)
current liabilities (157)
current ratio (180)
fiscal year (178)
fixed (plant) assets (157)
Income Summary (159)
liquidity (179)
long-term liabilities (157)
natural business year (179)
notes receivable (157)
permanent (real) accounts (158)
solvency (179)
temporary (nominal) accounts (158)
working capital (179)

Illustrative Problem

Three years ago, T. Roderick organized Harbor Realty. At July 31, 2012, the end of the current fiscal year, the following end-of-period spreadsheet was prepared:

	A	B	C	D	E	F	G
1		Harbor Realty					
2		End-of-Period Spreadsheet					
3		For the Year Ended July 31, 2012					
4		Unadjusted				Adjusted	
5		Trial Balance		Adjustments		Trial Balance	
6	**Account Title**	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
7							
8	Cash	3,425				3,425	
9	Accounts Receivable	7,000		(e) 1,000		8,000	
10	Supplies	1,270			(a) 890	380	
11	Prepaid Insurance	620			(b) 315	305	
12	Office Equipment	51,650				51,650	
13	Accum. Depreciation		9,700		(c) 4,950		14,650
14	Accounts Payable		925				925
15	Unearned Fees		1,250	(f) 500			750
16	Wages Payable				(d) 440		440
17	T. Roderick, Capital		29,000				29,000
18	T. Roderick, Drawing	5,200				5,200	
19	Fees Earned		59,125		(e) 1,000		60,625
20					(f) 500		
21	Wages Expense	22,415		(d) 440		22,855	
22	Depreciation Expense			(c) 4,950		4,950	
23	Rent Expense	4,200				4,200	
24	Utilities Expense	2,715				2,715	
25	Supplies Expense			(a) 890		890	
26	Insurance Expense			(b) 315		315	
27	Miscellaneous Expense	1,505				1,505	
28		100,000	100,000	8,095	8,095	106,390	106,390
29							

Instructions

1. Prepare an income statement, a statement of owner's equity (no additional investments were made during the year), and a balance sheet.
2. On the basis of the data in the end-of-period spreadsheet, journalize the closing entries.

Solution

1.

Harbor Realty
Income Statement
For the Year Ended July 31, 2012

Fees earned		$60,625
Expenses:		
Wages expense	$22,855	
Depreciation expense	4,950	
Rent expense	4,200	
Utilities expense	2,715	
Supplies expense	890	
Insurance expense	315	
Miscellaneous expense	1,505	
Total expenses		37,430
Net income		$23,195

Harbor Realty
Statement of Owner's Equity
For the Year Ended July 31, 2012

T. Roderick, capital, August 1, 2011		$29,000
Net income for the year	$23,195	
Less withdrawals	5,200	
Increase in owner's equity		17,995
T. Roderick, capital, July 31, 2012		$46,995

Harbor Realty
Balance Sheet
July 31, 2012

Assets			**Liabilities**		
Current assets:			Current liabilities:		
Cash	$ 3,425		Accounts payable	$925	
Accounts receivable	8,000		Unearned fees	750	
Supplies	380		Wages payable	440	
Prepaid insurance	305		Total liabilities		$ 2,115
Total current assets		$12,110			
Property, plant, and equipment:					
Office equipment	$51,650				
Less accum. depreciation	14,650		**Owner's Equity**		
Total property, plant, and equipment		37,000	T. Roderick, capital		46,995
Total assets		$49,110	Total liabilities and owner's equity		$49,110

2.

Journal *Page*

Date		Description	Post. Ref.	Debit	Credit
2012		Closing Entries			
July	31	Fees Earned		60,625	
		Income Summary			60,625
	31	Income Summary		37,430	
		Wages Expense			22,855
		Depreciation Expense			4,950
		Rent Expense			4,200
		Utilities Expense			2,715
		Supplies Expense			890
		Insurance Expense			315
		Miscellaneous Expense			1,505
	31	Income Summary		23,195	
		T. Roderick, Capital			23,195
	31	T. Roderick, Capital		5,200	
		T. Roderick, Drawing			5,200

Discussion Questions

1. Why do some accountants prepare an end-of-period spreadsheet?
2. Describe the nature of the assets that compose the following sections of a balance sheet: (a) current assets, (b) property, plant, and equipment.
3. What is the difference between a current liability and a long-term liability?
4. What types of accounts are referred to as temporary accounts?
5. Why are closing entries required at the end of an accounting period?
6. What is the difference between adjusting entries and closing entries?
7. What is the purpose of the post-closing trial balance?
8. (a) What is the most important output of the accounting cycle? (b) Do all companies have an accounting cycle? Explain.
9. What is the natural business year?
10. The fiscal years for several well-known companies are as follows:

Company	Fiscal Year Ending	Company	Fiscal Year Ending
Sears	January 30	Home Depot	January 31
JCPenney	January 30	Tiffany & Co.	January 31
Target Corp.	January 30	Limited Brands, Inc.	January 31

What general characteristic shared by these companies explains why they do not have fiscal years ending December 31?

Practice Exercises

Learning Objectives	Example Exercises
OBJ. 1	EE 4-1 p. 154

PE 4-1A Flow of accounts into financial statements

The balances for the accounts listed below appear in the Adjusted Trial Balance columns of the end-of-period spreadsheet. Indicate whether each account would flow into the income statement, statement of owner's equity, or balance sheet.

1. Accounts Receivable
2. Depreciation Expense—Equipment
3. Jean Kehler, Capital
4. Office Equipment
5. Rent Revenue
6. Supplies Expense
7. Unearned Revenue
8. Wages Payable

OBJ. 1 EE 4-1 p. 154

PE 4-1B Flow of accounts into financial statements

The balances for the accounts listed below appear in the Adjusted Trial Balance columns of the end-of-period spreadsheet. Indicate whether each account would flow into the income statement, statement of owner's equity, or balance sheet.

1. Accumulated Depreciation—Building
2. Cash
3. Fees Earned
4. Insurance Expense
5. Prepaid Rent
6. Supplies
7. Vincent Schafer, Drawing
8. Wages Expense

OBJ. 2 EE 4-2 p. 156

PE 4-2A Statement of owner's equity

Judy Flint owns and operates Derby Advertising Services. On January 1, 2011, Judy Flint, Capital had a balance of $290,000. During the year, Judy invested an additional $100,000 and withdrew $40,000. For the year ended December 31, 2011, Derby Advertising Services reported a net income of $93,750. Prepare a statement of owner's equity for the year ended December 31, 2011.

OBJ. 2 EE 4-2 p. 156

PE 4-2B Statement of owner's equity

Mavis Curry owns and operates A2Z Delivery Services. On January 1, 2011, Mavis Curry, Capital had a balance of $600,000. During the year, Mavis made no additional investments and withdrew $45,000. For the year ended December 31, 2011, A2Z Delivery Services reported a net loss of $13,500. Prepare a statement of owner's equity for the year ended December 31, 2011.

OBJ. 2 EE 4-3 p. 157

PE 4-3A Classified balance sheet

The following accounts appear in an adjusted trial balance of Pilot Consulting. Indicate whether each account would be reported in the (a) current asset; (b) property, plant, and equipment; (c) current liability; (d) long-term liability; or (e) owner's equity section of the December 31, 2011, balance sheet of Pilot Consulting.

1. Building
2. Marty Ramsey, Capital
3. Notes Payable (due in 2017)
4. Prepaid Rent
5. Salaries Payable
6. Supplies
7. Taxes Payable
8. Unearned Service Fees

Learning Objectives *Example Exercises*

OBJ. 2 **EE 4-3** *p. 157*

PE 4-3B Classified balance sheet

The following accounts appear in an adjusted trial balance of F-18 Consulting. Indicate whether each account would be reported in the (a) current asset; (b) property, plant, and equipment; (c) current liability; (d) long-term liability; or (e) owner's equity section of the December 31, 2011, balance sheet of F-18 Consulting.

1. Accounts Payable
2. Accounts Receivable
3. Accumulated Depreciation—Building
4. Cash
5. Jess Garza, Capital
6. Note Payable (due in 2018)
7. Supplies
8. Wages Payable

OBJ. 3 **EE 4-4** *p. 161*

PE 4-4A Closing entries

After the accounts have been adjusted at October 31, the end of the fiscal year, the following balances were taken from the ledger of Silver Gate Delivery Services Co.:

Mira Craig, Capital	$800,000
Mira Craig, Drawing	125,000
Fees Earned	700,000
Wages Expense	400,000
Rent Expense	75,000
Supplies Expense	16,000
Miscellaneous Expense	5,000

Journalize the four entries required to close the accounts.

OBJ. 3 **EE 4-4** *p. 161*

PE 4-4B Closing entries

After the accounts have been adjusted at June 30, the end of the fiscal year, the following balances were taken from the ledger of Hillcrest Landscaping Co.:

Bryan Orr, Capital	$275,000
Bryan Orr, Drawing	25,000
Fees Earned	400,000
Wages Expense	280,000
Rent Expense	40,000
Supplies Expense	3,000
Miscellaneous Expense	12,000

Journalize the four entries required to close the accounts.

OBJ. 4 **EE 4-5** *p. 164*

PE 4-5A Accounting cycle

From the following list of steps in the accounting cycle, identify what two steps are missing.

a. Transactions are analyzed and recorded in the journal.
b. An unadjusted trial balance is prepared.
c. Adjustment data are assembled and analyzed.
d. An optional end-of-period spreadsheet is prepared.
e. Adjusting entries are journalized and posted to the ledger.
f. An adjusted trial balance is prepared.
g. Closing entries are journalized and posted to the ledger.
h. A post-closing trial balance is prepared.

OBJ. 4 **EE 4-5** *p. 164*

PE 4-5B Accounting cycle

From the following list of steps in the accounting cycle, identify what two steps are missing.

a. Transactions are analyzed and recorded in the journal.
b. Transactions are posted to the ledger.

Learning Objectives *Example Exercises*

c. An unadjusted trial balance is prepared.
d. An optional end-of-period spreadsheet is prepared.
e. Adjusting entries are journalized and posted to the ledger.
f. An adjusted trial balance is prepared.
g. Financial statements are prepared.
h. A post-closing trial balance is prepared.

OBJ. 7 **EE 4-6** *p. 180*

FAI

PE 4-6A Working capital and current ratio

The following balance sheet data for Mayer Company are shown below.

	2012	2011
Current assets	$840,000	$1,430,000
Current liabilities	600,000	550,000

a. Determine the working capital and current ratio for 2012 and 2011.
b. Does the change in the current ratio from 2011 to 2012 indicate a favorable or an unfavorable trend?

OBJ. 7 **EE 4-6** *p. 180*

FAI

PE 4-6B Working capital and current ratio

The following balance sheet data for Finn Company are shown below.

	2012	2011
Current assets	$288,000	$171,000
Current liabilities	120,000	90,000

a. Determine the working capital and current ratio for 2012 and 2011.
b. Does the change in the current ratio from 2011 to 2012 indicate a favorable or an unfavorable trend?

Exercises

OBJ. 1, 2

EX 4-1 Flow of accounts into financial statements

The balances for the accounts listed below appear in the Adjusted Trial Balance columns of the end-of-period spreadsheet. Indicate whether each account would flow into the income statement, statement of owner's equity, or balance sheet.

1. Accounts Payable
2. Accounts Receivable
3. Cash
4. Dora Kovar, Drawing
5. Fees Earned
6. Supplies
7. Unearned Rent
8. Utilities Expense
9. Wages Expense
10. Wages Payable

OBJ. 1, 2

EX 4-2 Classifying accounts

Balances for each of the following accounts appear in an adjusted trial balance. Identify each as (a) asset, (b) liability, (c) revenue, or (d) expense.

1. Accounts Receivable
2. Equipment
3. Fees Earned
4. Insurance Expense
5. Prepaid Advertising
6. Prepaid Rent
7. Rent Revenue
8. Salary Expense
9. Salary Payable
10. Supplies
11. Supplies Expense
12. Unearned Rent

OBJ. 1, 2

EX 4-3 Financial statements from the end-of-period spreadsheet

Pacifica Consulting is a consulting firm owned and operated by Tara Milsap. The end-of-period spreadsheet shown below was prepared for the year ended August 31, 2012.

	A	B	C	D	E	F	G
1		Pacifica Consulting					
2		End-of-Period Spreadsheet					
3		For the Year Ended August 31, 2012					
4		Unadjusted				Adjusted	
5		Trial Balance		Adjustments		Trial Balance	
6	Account Title	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
7							
8	Cash	9,500				9,500	
9	Accounts Receivable	22,500				22,500	
10	Supplies	2,400			(a) 2,000	400	
11	Office Equipment	18,500				18,500	
12	Accumulated Depreciation		2,500		(b) 1,200		3,700
13	Accounts Payable		6,100				6,100
14	Salaries Payable				(c) 300		300
15	Tara Milsap, Capital		22,600				22,600
16	Tara Milsap, Drawing	3,000				3,000	
17	Fees Earned		43,800				43,800
18	Salary Expense	17,250		(c) 300		17,550	
19	Supplies Expense			(a) 2,000		2,000	
20	Depreciation Expense			(b) 1,200		1,200	
21	Miscellaneous Expense	1,850				1,850	
22		75,000	75,000	3,500	3,500	76,500	76,500
23							

Based on the preceding spreadsheet, prepare an income statement, statement of owner's equity, and balance sheet for Pacifica Consulting.

OBJ. 1, 2

EX 4-4 Financial statements from the end-of-period spreadsheet

Three Winds Consulting is a consulting firm owned and operated by Gabriel Brull. The following end-of-period spreadsheet was prepared for the year ended June 30, 2012.

	A	B	C	D	E	F	G
1		Three Winds Consulting					
2		End-of-Period Spreadsheet					
3		For the Year Ended June 30, 2012					
4		Unadjusted				Adjusted	
5		Trial Balance		Adjustments		Trial Balance	
6	Account Title	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
7							
8	Cash	7,500				7,500	
9	Accounts Receivable	23,500				23,500	
10	Supplies	3,000			(a) 2,400	600	
11	Office Equipment	30,500				30,500	
12	Accumulated Depreciation		4,500		(b) 800		5,300
13	Accounts Payable		3,300				3,300
14	Salaries Payable				(c) 500		500
15	Gabriel Brull, Capital		32,200				32,200
16	Gabriel Brull, Drawing	2,000				2,000	
17	Fees Earned		60,000				60,000
18	Salary Expense	32,000		(c) 500		32,500	
19	Supplies Expense			(a) 2,400		2,400	
20	Depreciation Expense			(b) 800		800	
21	Miscellaneous Expense	1,500				1,500	
22		100,000	100,000	3,700	3,700	101,300	101,300
23							

Based on the preceding spreadsheet, prepare an income statement, statement of owner's equity, and balance sheet for Three Winds Consulting.

OBJ. 2

✔ Net income, $89,600

EX 4-5 Income statement

The following account balances were taken from the adjusted trial balance for On-Time Messenger Service, a delivery service firm, for the current fiscal year ended April 30, 2012:

Depreciation Expense	$ 6,400	Rent Expense	$ 48,400
Fees Earned	340,000	Salaries Expense	171,040
Insurance Expense	1,200	Supplies Expense	2,200
Miscellaneous Expense	2,600	Utilities Expense	18,560

Prepare an income statement.

OBJ. 2

✔ Net loss, $36,600

EX 4-6 Income statement; net loss

The following revenue and expense account balances were taken from the ledger of Graphics Services Co. after the accounts had been adjusted on February 29, 2012, the end of the current fiscal year:

Depreciation Expense	$ 9,000	Service Revenue	$250,000
Insurance Expense	4,000	Supplies Expense	3,000
Miscellaneous Expense	5,000	Utilities Expense	14,600
Rent Expense	36,000	Wages Expense	215,000

Prepare an income statement.

OBJ. 2

Internet Project

✔ a. Net income: $98

EX 4-7 Income statement

FedEx Corporation had the following revenue and expense account balances (in millions) at its fiscal year-end of May 31, 2009:

Depreciation	$1,975	Purchased Transportation	$ 4,534
Fuel	3,811	Rentals and Landing Fees	2,429
Maintenance and Repairs	1,898	Revenues	35,497
Other Expense (Income) Net	6,406	Salaries and Employee Benefits	13,767
Provision for Income Taxes	579		

a. Prepare an income statement.

b. Compare your income statement with the related income statement that is available at the FedEx Corporation Web site, which is linked to the text's Web site at **www.cengage.com/accounting/reeve.** What similarities and differences do you see?

OBJ. 2

✔ Lisa DuBois, capital, Oct. 31, 2012: $635,000

EX 4-8 Statement of owner's equity

Fouts Systems Co. offers its services to residents in the Chicago area. Selected accounts from the ledger of Fouts Systems Co. for the current fiscal year ended October 31, 2012, are as follows:

Lisa DuBois, Capital

Oct. 31	20,000	Nov. 1 (2011)	550,000
		Oct. 31	105,000

Lisa DuBois, Drawing

Jan. 31	5,000	Oct. 31	20,000
Apr. 30	5,000		
July 31	5,000		
Oct. 31	5,000		

Income Summary

Oct. 31	375,000	Oct. 31	480,000
31	105,000		

Prepare a statement of owner's equity for the year.

OBJ. 2

✔ Erica Kilty, capital, June 30, 2012: $346,500

EX 4-9 Statement of owner's equity; net loss

Selected accounts from the ledger of Balboa Sports for the current fiscal year ended June 30, 2012, are as follows:

Erica Kilty, Capital

June 30	42,000	July 1 (2011)	398,500
30	10,000		

Erica Kilty, Drawing

Sept. 30	2,500	June 30	10,000
Dec. 31	2,500		
May 31	2,500		
June 30	2,500		

Income Summary			
June 30	402,000	June 30	360,000
		30	42,000

Prepare a statement of owner's equity for the year.

OBJ. 2

EX 4-10 Classifying assets

Identify each of the following as (a) a current asset or (b) property, plant, and equipment:

1. Accounts receivable
2. Building
3. Cash
4. Equipment
5. Prepaid Insurance
6. Supplies

OBJ. 2

EX 4-11 Balance sheet classification

At the balance sheet date, a business owes a mortgage note payable of $480,000, the terms of which provide for monthly payments of $2,500.

Explain how the liability should be classified on the balance sheet.

OBJ. 2

✔ Total assets: $750,000

EX 4-12 Balance sheet

My-Best Weight Co. offers personal weight reduction consulting services to individuals. After all the accounts have been closed on November 30, 2012, the end of the current fiscal year, the balances of selected accounts from the ledger of My-Best Weight Co. are as follows:

Accounts Payable	$ 34,500	Land	$400,000
Accounts Receivable	83,120	Prepaid Insurance	19,200
Accumulated Depreciation—Equipment	103,900	Prepaid Rent	12,000
Blanca Tierney, Capital	692,000	Salaries Payable	13,500
Cash	?	Supplies	2,080
Equipment	300,000	Unearned Fees	10,000

Prepare a classified balance sheet that includes the correct balance for Cash.

OBJ. 2

✔ Corrected balance sheet, total assets: $525,000

EX 4-13 Balance sheet

List the errors you find in the following balance sheet. Prepare a corrected balance sheet.

Poshe Services Co.
Balance Sheet
For the Year Ended May 31, 2012

Assets			Liabilities		
Current assets:			Current liabilities:		
Cash	$ 14,000		Accounts receivable	$ 32,500	
Accounts payable	24,000		Accum. depr.—building	155,000	
Supplies	6,500		Accum. depr.—equipment	25,000	
Prepaid insurance	12,000		Net income	135,000	
Land	180,000		Total liabilities		$347,500
Total current assets		$236,500			
Property, plant, and equipment:			**Owner's Equity**		
Building	$375,000		Wages payable	$ 2,500	
Equipment	85,000		Hector Delgado, capital	498,500	
Total property, plant, and equipment		612,000	Total owner's equity		501,000
Total assets		$848,500	Total liabilities and owner's equity		$848,500

OBJ. 3

EX 4-14 Identifying accounts to be closed

From the list at the top of the next page, identify the accounts that should be closed to Income Summary at the end of the fiscal year:

a. Accounts Payable
b. Accumulated Depreciation—Equipment
c. Depreciation Expense—Equipment
d. Equipment
e. Fauzi Hanna, Capital
f. Fauzi Hanna, Drawing
g. Fees Earned
h. Land
i. Supplies
j. Supplies Expense
k. Wages Expense
l. Wages Payable

OBJ. 3

EX 4-15 Closing entries

Prior to its closing, Income Summary had total debits of $815,000 and total credits of $1,280,000.

Briefly explain the purpose served by the income summary account and the nature of the entries that resulted in the $815,000 and the $1,280,000.

OBJ. 3

EX 4-16 Closing entries with net income

After all revenue and expense accounts have been closed at the end of the fiscal year, Income Summary has a debit of $315,000 and a credit of $449,500. At the same date, Faye Barnes, Capital has a credit balance of $750,000, and Faye Barnes, Drawing has a balance of $40,000. (a) Journalize the entries required to complete the closing of the accounts. (b) Determine the amount of Faye Barnes, Capital at the end of the period.

OBJ. 3

EX 4-17 Closing entries with net loss

Imex Services Co. offers its services to individuals desiring to improve their personal images. After the accounts have been adjusted at March 31, the end of the fiscal year, the following balances were taken from the ledger of Imex Services Co.

Margo Hoskins, Capital	$300,000	Rent Expense	$40,000
Margo Hoskins, Drawing	15,000	Supplies Expense	20,000
Fees Earned	180,000	Miscellaneous Expense	7,500
Wages Expense	90,000		

Journalize the four entries required to close the accounts.

OBJ. 3

EX 4-18 Identifying permanent accounts

Which of the following accounts will usually appear in the post-closing trial balance?

a. Accounts Payable
b. Accumulated Depreciation
c. Anthony Adams, Capital
d. Anthony Adams, Drawing
e. Cash
f. Depreciation Expense
g. Fees Earned
h. Office Equipment
i. Salaries Expense
j. Salaries Payable
k. Supplies

OBJ. 3

✔ Correct column totals, $129,500

EX 4-19 Post-closing trial balance

An accountant prepared the following post-closing trial balance:

Gypsy Treasures Co.
Post-Closing Trial Balance
March 31, 2012

	Debit Balances	Credit Balances
Cash	18,000	
Accounts Receivable	31,000	
Supplies		5,500
Equipment		75,000
Accumulated Depreciation—Equipment	19,000	
Accounts Payable	11,000	
Salaries Payable		1,000
Unearned Rent	6,000	
Leticia Aloni, Capital	92,500	
	177,500	81,500

Prepare a corrected post-closing trial balance. Assume that all accounts have normal balances and that the amounts shown are correct.

OBJ. 4

EX 4-20 Steps in the accounting cycle

Rearrange the following steps in the accounting cycle in proper sequence:

a. Financial statements are prepared.
b. An adjusted trial balance is prepared.
c. Adjustment data are asssembled and analyzed.
d. Adjusting entries are journalized and posted to the ledger.
e. Closing entries are journalized and posted to the ledger.
f. An unadjusted trial balance is prepared.
g. Transactions are posted to the ledger.
h. Transactions are analyzed and recorded in the journal.
i. An optional end-of-period spreadsheet (work sheet) is prepared.
j. A post-closing trial balance is prepared.

OBJ. 7

FAI

EX 4-21 Working capital and current ratio

The following data (in thousands) were taken from recent financial statements of Under Armour, Inc.:

	December 31	
	2008	2007
Current assets	$396,423	$322,245
Current liabilities	113,110	95,699

a. Compute the working capital and the current ratio as of December 31, 2008 and 2007. Round to two decimal places.

b. What conclusions concerning the company's ability to meet its financial obligations can you draw from part (a)?

OBJ. 7

FAI

EX 4-22 Working capital and current ratio

The following data (in thousands) were taken from recent financial statements of Starbucks Corporation:

	Sept. 27, 2009	Sept. 28, 2008
Current assets	$2,035,800	$1,748,000
Current liabilities	1,581,000	2,189,700

a. Compute the working capital and the current ratio as of September 27, 2009, and September 28, 2008. Round to two decimal places.

b. What conclusions concerning the company's ability to meet its financial obligations can you draw from part (a)?

Appendix

EX 4-23 Completing an end-of-period spreadsheet (work sheet)

List (a) through (j) in the order they would be performed in preparing and completing an end-of-period spreadsheet (work sheet).

a. Add the Debit and Credit columns of the Unadjusted Trial Balance columns of the spreadsheet (work sheet) to verify that the totals are equal.

b. Add the Debit and Credit columns of the Balance Sheet and Income Statement columns of the spreadsheet (work sheet) to verify that the totals are equal.

c. Add or deduct adjusting entry data to trial balance amounts, and extend amounts to the Adjusted Trial Balance columns.

(Continued)

d. Add the Debit and Credit columns of the Adjustments columns of the spreadsheet (work sheet) to verify that the totals are equal.

e. Add the Debit and Credit columns of the Balance Sheet and Income Statement columns of the spreadsheet (work sheet) to determine the amount of net income or net loss for the period.

f. Add the Debit and Credit columns of the Adjusted Trial Balance columns of the spreadsheet (work sheet) to verify that the totals are equal.

g. Enter the adjusting entries into the spreadsheet (work sheet), based on the adjustment data.

h. Enter the amount of net income or net loss for the period in the proper Income Statement column and Balance Sheet column.

i. Enter the unadjusted account balances from the general ledger into the Unadjusted Trial Balance columns of the spreadsheet (work sheet).

j. Extend the adjusted trial balance amounts to the Income Statement columns and the Balance Sheet columns.

✓ Total debits of Adjustments column: $27

Appendix

EX 4-24 Adjustment data on an end-of-period spreadsheet (work sheet)

Zeidman Security Services Co. offers security services to business clients. The trial balance for Zeidman Security Services Co. has been prepared on the end-of-period spreadsheet (work sheet) for the year ended July 31, 2012, shown below.

Zeidman Security Services Co.
End-of-Period Spreadsheet (Work Sheet)
For the Year Ended July 31, 2012

	Unadjusted Trial Balance		Adjustments		Adjusted Trial Balance	
Account Title	**Dr.**	**Cr.**	**Dr.**	**Cr.**	**Dr.**	**Cr.**
Cash	12					
Accounts Receivable	80					
Supplies	8					
Prepaid Insurance	12					
Land	100					
Equipment	40					
Accum. Depr.—Equipment		4				
Accounts Payable		36				
Wages Payable		0				
Alex Zeidman, Capital		170				
Alex Zeidman, Drawing	8					
Fees Earned		90				
Wages Expense	20					
Rent Expense	12					
Insurance Expense	0					
Utilities Expense	6					
Supplies Expense	0					
Depreciation Expense	0					
Miscellaneous Expense	2					
	300	300				

The data for year-end adjustments are as follows:

a. Fees earned, but not yet billed, $9.

b. Supplies on hand, $3.

c. Insurance premiums expired, $8.

d. Depreciation expense, $4.

e. Wages accrued, but not paid, $1.

Enter the adjustment data, and place the balances in the Adjusted Trial Balance columns.

✓ Net income: $41

Appendix

EX 4-25 Completing an end-of-period spreadsheet (work sheet)

Zeidman Security Services Co. offers security services to business clients. Complete the following end-of-period spreadsheet (work sheet) for Zeidman Security Services Co.

Zeidman Security Services Co.
End-of-Period Spreadsheet (Work Sheet)
For the Year Ended July 31, 2012

Account Title	Adjusted Trial Balance		Income Statement		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash	12					
Accounts Receivable	89					
Supplies	3					
Prepaid Insurance	4					
Land	100					
Equipment	40					
Accum. Depr.—Equipment		8				
Accounts Payable		36				
Wages Payable		1				
Alex Zeidman, Capital		170				
Alex Zeidman, Drawing	8					
Fees Earned		99				
Wages Expense	21					
Rent Expense	12					
Insurance Expense	8					
Utilities Expense	6					
Supplies Expense	5					
Depreciation Expense	4					
Miscellaneous Expense	2					
	314	314				
Net income (loss)						

✔ Alex Zeidman, capital, July 31, 2012: $203

Appendix
EX 4-26 Financial statements from an end-of-period spreadsheet (work sheet)

Based on the data in Exercise 4-25, prepare an income statement, statement of owner's equity, and balance sheet for Zeidman Security Services Co.

Appendix
EX 4-27 Adjusting entries from an end-of-period spreadsheet (work sheet)

Based on the data in Exercise 4-24, prepare the adjusting entries for Zeidman Security Services Co.

Appendix
EX 4-28 Appendix: Closing entries from an end-of-period spreadsheet (work sheet)

Based on the data in Exercise 4-25, prepare the closing entries for Zeidman Security Services Co.

Problems Series A

OBJ. 1, 2, 3

✔ 3. Total assets: $239,500

PR 4-1A Financial statements and closing entries

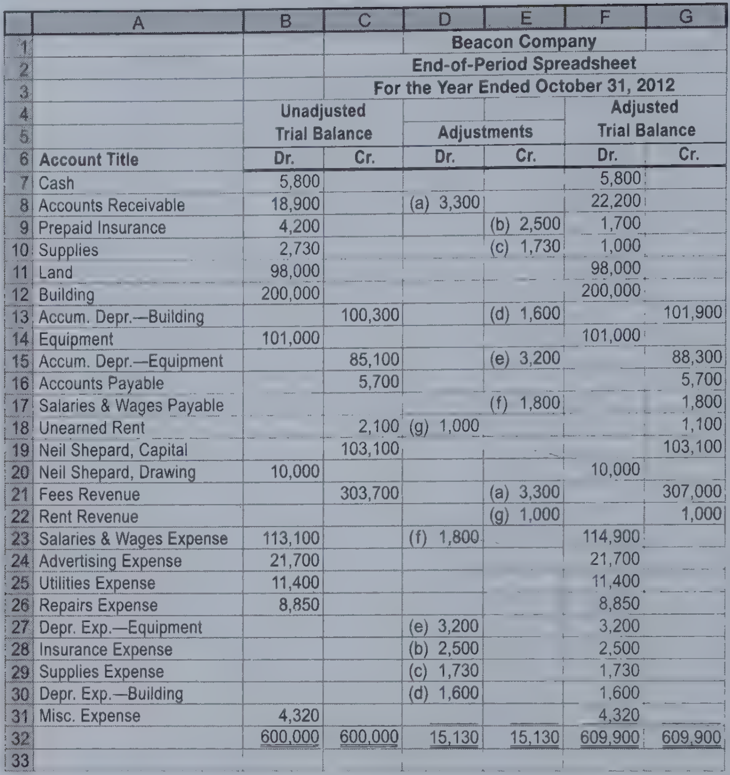
Beacon Company maintains and repairs warning lights, such as those found on radio towers and lighthouses. Beacon Company prepared the end-of-period spreadsheet shown on the next page at October 31, 2012, the end of the current fiscal year:

Instructions

1. Prepare an income statement for the year ended October 31.
2. Prepare a statement of owner's equity for the year ended October 31. No additional investments were made during the year.
3. Prepare a balance sheet as of October 31.
4. Based upon the end-of-period spreadsheet, journalize the closing entries.

(Continued)

5. Prepare a post-closing trial balance.



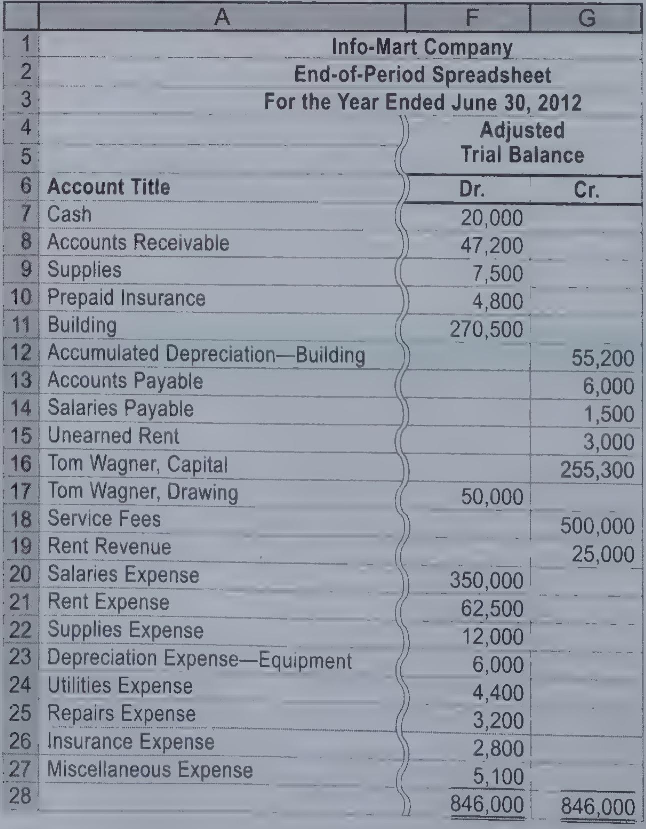
	A	B	C	D	E	F	G
1				Beacon Company			
2				End-of-Period Spreadsheet			
3				For the Year Ended October 31, 2012			
4		Unadjusted				Adjusted	
5		Trial Balance		Adjustments		Trial Balance	
6	Account Title	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
7	Cash	5,800				5,800	
8	Accounts Receivable	18,900		(a) 3,300		22,200	
9	Prepaid Insurance	4,200			(b) 2,500	1,700	
10	Supplies	2,730			(c) 1,730	1,000	
11	Land	98,000				98,000	
12	Building	200,000				200,000	
13	Accum. Depr.—Building		100,300		(d) 1,600		101,900
14	Equipment	101,000				101,000	
15	Accum. Depr.—Equipment		85,100		(e) 3,200		88,300
16	Accounts Payable		5,700				5,700
17	Salaries & Wages Payable				(f) 1,800		1,800
18	Unearned Rent		2,100	(g) 1,000			1,100
19	Neil Shepard, Capital		103,100				103,100
20	Neil Shepard, Drawing	10,000				10,000	
21	Fees Revenue		303,700		(a) 3,300		307,000
22	Rent Revenue				(g) 1,000		1,000
23	Salaries & Wages Expense	113,100		(f) 1,800		114,900	
24	Advertising Expense	21,700				21,700	
25	Utilities Expense	11,400				11,400	
26	Repairs Expense	8,850				8,850	
27	Depr. Exp.—Equipment			(e) 3,200		3,200	
28	Insurance Expense			(b) 2,500		2,500	
29	Supplies Expense			(c) 1,730		1,730	
30	Depr. Exp.—Building			(d) 1,600		1,600	
31	Misc. Expense	4,320				4,320	
32		600,000	600,000	15,130	15,130	609,900	609,900
33							

OBJ. 2, 3

✔ 1. Tom Wagner, capital, June 30: $284,300

PR 4-2A Financial statements and closing entries

Info-Mart Company is an investigative services firm that is owned and operated by Tom Wagner. On June 30, 2012, the end of the current fiscal year, the accountant for Info-Mart Company prepared an end-of-period spreadsheet, a part of which is shown below.



	A	F	G
1		Info-Mart Company	
2		End-of-Period Spreadsheet	
3		For the Year Ended June 30, 2012	
4		Adjusted	
5		Trial Balance	
6	Account Title	Dr.	Cr.
7	Cash	20,000	
8	Accounts Receivable	47,200	
9	Supplies	7,500	
10	Prepaid Insurance	4,800	
11	Building	270,500	
12	Accumulated Depreciation—Building		55,200
13	Accounts Payable		6,000
14	Salaries Payable		1,500
15	Unearned Rent		3,000
16	Tom Wagner, Capital		255,300
17	Tom Wagner, Drawing	50,000	
18	Service Fees		500,000
19	Rent Revenue		25,000
20	Salaries Expense	350,000	
21	Rent Expense	62,500	
22	Supplies Expense	12,000	
23	Depreciation Expense—Equipment	6,000	
24	Utilities Expense	4,400	
25	Repairs Expense	3,200	
26	Insurance Expense	2,800	
27	Miscellaneous Expense	5,100	
28		846,000	846,000

Instructions

1. Prepare an income statement, statement of owner's equity (no additional investments were made during the year), and a balance sheet.
2. Journalize the entries that were required to close the accounts at June 30.
3. If Tom Wagner, Capital decreased $75,000 after the closing entries were posted, and the withdrawals remained the same, what was the amount of net income or net loss?

OBJ. 2, 3

✔ 2. Net income: $39,300

PR 4-3A T accounts, adjusting entries, financial statements, and closing entries; optional end-of-period spreadsheet (work sheet)

The unadjusted trial balance of Launderland at November 30, 2012, the end of the current fiscal year, is shown below.

Launderland
Unadjusted Trial Balance
November 30, 2012

	Debit Balances	Credit Balances
Cash	9,000	
Laundry Supplies	20,900	
Prepaid Insurance	9,600	
Laundry Equipment	290,000	
Accumulated Depreciation		150,400
Accounts Payable		11,800
Gene Halsey, Capital		105,600
Gene Halsey, Drawing	8,400	
Laundry Revenue		232,200
Wages Expense	97,000	
Rent Expense	40,000	
Utilities Expense	19,700	
Miscellaneous Expense	5,400	
	500,000	500,000

The data needed to determine year-end adjustments are as follows:

a. Laundry supplies on hand at November 30 are $5,000.
b. Insurance premiums expired during the year are $6,400.
c. Depreciation of equipment during the year is $7,000.
d. Wages accrued but not paid at November 30 are $1,500.

Instructions

1. For each account listed in the unadjusted trial balance, enter the balance in a T account. Identify the balance as "November 30 Bal." In addition, add T accounts for Wages Payable, Depreciation Expense, Laundry Supplies Expense, Insurance Expense, and Income Summary.
2. **Optional:** Enter the unadjusted trial balance on an end-of-period spreadsheet (work sheet) and complete the spreadsheet. Add the accounts listed in part (1) as needed.
3. Journalize and post the adjusting entries. Identify the adjustments by "Adj." and the new balances as "Adj. Bal."
4. Prepare an adjusted trial balance.
5. Prepare an income statement, a statement of owner's equity (no additional investments were made during the year), and a balance sheet.
6. Journalize and post the closing entries. Identify the closing entries by "Clos."
7. Prepare a post-closing trial balance.

OBJ. 2, 3

✔ 4. Net income: $22,350

PR 4-4A Ledger accounts, adjusting entries, financial statements, and closing entries; optional end-of-period spreadsheet (work sheet)

If the working papers correlating with this textbook are not used, omit Problem 4-4A.

The ledger and trial balance of Wizard Services Co. as of July 31, 2012, the end of the first month of its current fiscal year, are presented in the working papers.

Data needed to determine the necessary adjusting entries are as follows:

a. Service revenue accrued at July 31 is $1,000.
b. Supplies on hand at July 31 are $3,900.
c. Insurance premiums expired during July are $1,100.
d. Depreciation of the building during July is $1,400.
e. Depreciation of equipment during July is $900.
f. Unearned rent at July 31 is $700.
g. Wages accrued at July 31 are $100.

Instructions

1. **Optional:** Complete the end-of-period spreadsheet (work sheet) using the adjustment data shown above.
2. Journalize and post the adjusting entries, inserting balances in the accounts affected.
3. Prepare an adjusted trial balance.
4. Prepare an income statement, a statement of owner's equity, and a balance sheet.
5. Journalize and post the closing entries. Indicate closed accounts by inserting a line in both Balance columns opposite the closing entry. Insert the new balance of the capital account.
6. Prepare a post-closing trial balance.

OBJ. 2, 3

✔ 5. Net income: $63,700

PR 4-5A Ledger accounts, adjusting entries, financial statements, and closing entries; optional spreadsheet (work sheet)

The unadjusted trial balance of Bruno's Hauling at February 29, 2012, the end of the current year, is shown below.

Bruno's Hauling
Unadjusted Trial Balance
February 29, 2012

		Debit Balances	Credit Balances
11	Cash	5,000	
13	Supplies	12,000	
14	Prepaid Insurance	3,600	
16	Equipment	110,000	
17	Accumulated Depreciation—Equipment		25,000
18	Trucks	60,000	
19	Accumulated Depreciation—Trucks		15,000
21	Accounts Payable		4,000
31	Bruno Shelton, Capital		71,000
32	Bruno Shelton, Drawing	15,000	
41	Service Revenue		160,000
51	Wages Expense	45,000	
53	Rent Expense	10,600	
54	Truck Expense	9,000	
59	Miscellaneous Expense	4,800	
		275,000	275,000

The data needed to determine year-end adjustments are as follows:

a. Supplies on hand at February 29 are $1,000.
b. Insurance premiums expired during year are $2,400.
c. Depreciation of equipment during year is $8,000.
d. Depreciation of trucks during year is $5,000.
e. Wages accrued but not paid at February 29 are $500.

Instructions

1. For each account listed in the trial balance, enter the balance in the appropriate Balance column of a four-column account and place a check mark (✓) in the Posting Reference column.

2. **Optional:** Enter the unadjusted trial balance on an end-of-period spreadsheet (work sheet) and complete the spreadsheet. Add the accounts listed in part (3) as needed.
3. Journalize and post the adjusting entries, inserting balances in the accounts affected. Record the adjusting entries on Page 26 of the journal. The following additional accounts from Bruno's Hauling's chart of accounts should be used: Wages Payable, 22; Supplies Expense, 52; Depreciation Expense—Equipment, 55; Depreciation Expense—Trucks, 56; Insurance Expense, 57.
4. Prepare an adjusted trial balance.
5. Prepare an income statement, a statement of owner's equity (no additional investments were made during the year), and a balance sheet.
6. Journalize and post the closing entries. Record the closing entries on Page 27 of the journal. (Income Summary is account #33 in the chart of accounts.) Indicate closed accounts by inserting a line in both Balance columns opposite the closing entry.
7. Prepare a post-closing trial balance.

OBJ. 4, 5

✔ 8. Net income: $23,500

PR 4-6A Complete accounting cycle

For the past several years, Shane Banovich has operated a part-time consulting business from his home. As of October 1, 2012, Shane decided to move to rented quarters and to operate the business, which was to be known as Epic Consulting, on a full-time basis. Epic Consulting entered into the following transactions during October:

Oct. 1. The following assets were received from Shane Banovich: cash, $12,000; accounts receivable, $6,000; supplies, $1,500; and office equipment, $9,000. There were no liabilities received.
1. Paid three months' rent on a lease rental contract, $4,800.
2. Paid the premiums on property and casualty insurance policies, $3,000.
4. Received cash from clients as an advance payment for services to be provided and recorded it as unearned fees, $4,000.
5. Purchased additional office equipment on account from Office Station Co., $2,000.
6. Received cash from clients on account, $3,500.
10. Paid cash for a newspaper advertisement, $400.
12. Paid Office Station Co. for part of the debt incurred on October 5, $1,000.
12. Recorded services provided on account for the period October 1–12, $6,000.
14. Paid part-time receptionist for two weeks' salary, $1,000.

Record the following transactions on Page 2 of the journal.

17. Recorded cash from cash clients for fees earned during the period October 1–17, $7,500.
18. Paid cash for supplies, $750.
20. Recorded services provided on account for the period October 13–20, $5,200.
24. Recorded cash from cash clients for fees earned for the period October 17–24, $3,700.
26. Received cash from clients on account, $5,500.
27. Paid part-time receptionist for two weeks' salary, $1,000.
29. Paid telephone bill for October, $250.
31. Paid electricity bill for October, $300.
31. Recorded cash from cash clients for fees earned for the period October 25–31, $2,800.
31. Recorded services provided on account for the remainder of October, $3,000.
31. Shane withdrew $8,000 for personal use.

Instructions

1. Journalize each transaction in a two-column journal starting on Page 1, referring to the following chart of accounts in selecting the accounts to be debited and credited. (Do not insert the account numbers in the journal at this time.)

   11 Cash
   12 Accounts Receivable
   14 Supplies
   15 Prepaid Rent
   16 Prepaid Insurance
   18 Office Equipment
   19 Accumulated Depreciation
   21 Accounts Payable
   22 Salaries Payable
   23 Unearned Fees
   31 Shane Banovich, Capital
   32 Shane Banovich, Drawing
   41 Fees Earned
   51 Salary Expense
   52 Rent Expense
   53 Supplies Expense
   54 Depreciation Expense
   55 Insurance Expense
   59 Miscellaneous Expense

2. Post the journal to a ledger of four-column accounts.
3. Prepare an unadjusted trial balance.
4. At the end of October, the following adjustment data were assembled. Analyze and use these data to complete parts (5) and (6).
   a. Insurance expired during October is $250.
   b. Supplies on hand on October 31 are $700.
   c. Depreciation of office equipment for October is $300.
   d. Accrued receptionist salary on October 31 is $250.
   e. Rent expired during October is $1,600.
   f. Unearned fees on October 31 are $1,800.
5. **Optional:** Enter the unadjusted trial balance on an end-of-period spreadsheet (work sheet) and complete the spreadsheet.
6. Journalize and post the adjusting entries. Record the adjusting entries on Page 3 of the journal.
7. Prepare an adjusted trial balance.
8. Prepare an income statement, a statement of owner's equity, and a balance sheet.
9. Prepare and post the closing entries. (Income Summary is account #33 in the chart of accounts.) Record the closing entries on Page 4 of the journal. Indicate closed accounts by inserting a line in both the Balance columns opposite the closing entry.
10. Prepare a post-closing trial balance.

Problems Series B

OBJ. 1, 2, 3

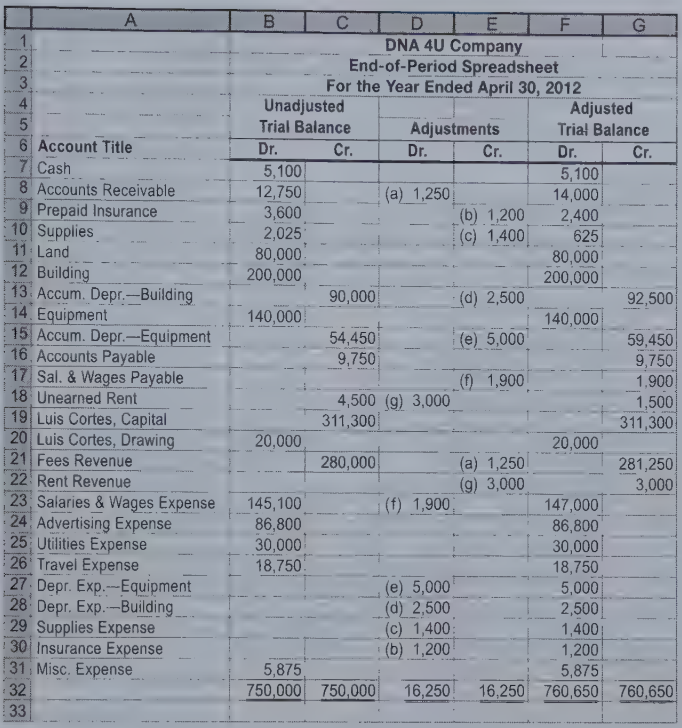
✓ 3. Total assets: $290,175

PR 4-1B Financial statements and closing entries

DNA 4 U Company offers legal consulting advice to prison inmates. DNA 4 U Company prepared the end-of-period spreadsheet at the top of the following page at April 30, 2012, the end of the current fiscal year.

Instructions

1. Prepare an income statement for the year ended April 30.
2. Prepare a statement of owner's equity for the year ended April 30. No additional investments were made during the year.
3. Prepare a balance sheet as of April 30.
4. On the basis of the end-of-period spreadsheet, journalize the closing entries.
5. Prepare a post-closing trial balance.



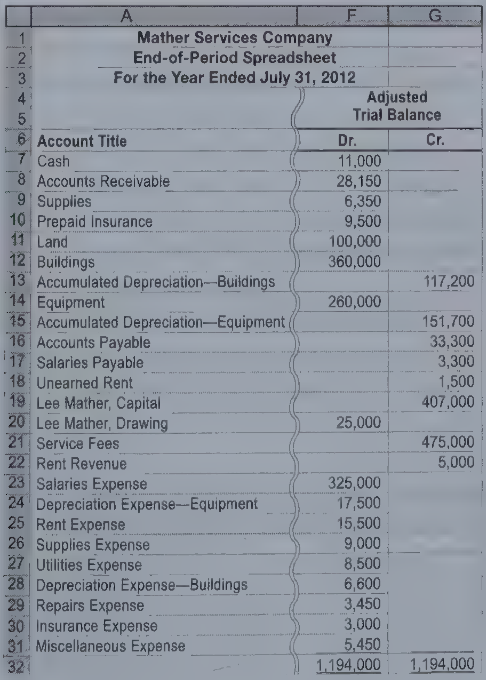
	A	B	C	D	E	F	G
1		DNA 4U Company					
2		End-of-Period Spreadsheet					
3		For the Year Ended April 30, 2012					
4		Unadjusted				Adjusted	
5		Trial Balance		Adjustments		Trial Balance	
6	**Account Title**	**Dr.**	**Cr.**	**Dr.**	**Cr.**	**Dr.**	**Cr.**
7	Cash	5,100				5,100	
8	Accounts Receivable	12,750		(a) 1,250		14,000	
9	Prepaid Insurance	3,600			(b) 1,200	2,400	
10	Supplies	2,025			(c) 1,400	625	
11	Land	80,000				80,000	
12	Building	200,000				200,000	
13	Accum. Depr.—Building		90,000		(d) 2,500		92,500
14	Equipment	140,000				140,000	
15	Accum. Depr.—Equipment		54,450		(e) 5,000		59,450
16	Accounts Payable		9,750				9,750
17	Sal. & Wages Payable				(f) 1,900		1,900
18	Unearned Rent		4,500	(g) 3,000			1,500
19	Luis Cortes, Capital		311,300				311,300
20	Luis Cortes, Drawing	20,000				20,000	
21	Fees Revenue		280,000		(a) 1,250		281,250
22	Rent Revenue				(g) 3,000		3,000
23	Salaries & Wages Expense	145,100		(f) 1,900		147,000	
24	Advertising Expense	86,800				86,800	
25	Utilities Expense	30,000				30,000	
26	Travel Expense	18,750				18,750	
27	Depr. Exp.—Equipment			(e) 5,000		5,000	
28	Depr. Exp.—Building			(d) 2,500		2,500	
29	Supplies Expense			(c) 1,400		1,400	
30	Insurance Expense			(b) 1,200		1,200	
31	Misc. Expense	5,875				5,875	
32		750,000	750,000	16,250	16,250	760,650	760,650
33							

OBJ. 2, 3

✔ 1. Lee Mather, capital, July 31: $468,000

PR 4-2B Financial statements and closing entries

Mather Services Company is a financial planning services firm owned and operated by Lee Mather. As of July 31, 2012, the end of the current fiscal year, the accountant for Mather Services Company prepared an end-of-period spreadsheet (work sheet), part of which is shown below.



	A	F	G
1	Mather Services Company		
2	End-of-Period Spreadsheet		
3	For the Year Ended July 31, 2012		
4		Adjusted	
5		Trial Balance	
6	**Account Title**	**Dr.**	**Cr.**
7	Cash	11,000	
8	Accounts Receivable	28,150	
9	Supplies	6,350	
10	Prepaid Insurance	9,500	
11	Land	100,000	
12	Buildings	360,000	
13	Accumulated Depreciation—Buildings		117,200
14	Equipment	260,000	
15	Accumulated Depreciation—Equipment		151,700
16	Accounts Payable		33,300
17	Salaries Payable		3,300
18	Unearned Rent		1,500
19	Lee Mather, Capital		407,000
20	Lee Mather, Drawing	25,000	
21	Service Fees		475,000
22	Rent Revenue		5,000
23	Salaries Expense	325,000	
24	Depreciation Expense—Equipment	17,500	
25	Rent Expense	15,500	
26	Supplies Expense	9,000	
27	Utilities Expense	8,500	
28	Depreciation Expense—Buildings	6,600	
29	Repairs Expense	3,450	
30	Insurance Expense	3,000	
31	Miscellaneous Expense	5,450	
32		1,194,000	1,194,000

Instructions

1. Prepare an income statement, a statement of owner's equity (no additional investments were made during the year), and a balance sheet.
2. Journalize the entries that were required to close the accounts at July 31.
3. If the balance of Lee Mather, Capital increased $40,000 after the closing entries were posted, and the withdrawals remained the same, what was the amount of net income or net loss?

OBJ. 2, 3

✓ 2. Net income: $30,640

PR 4-3B T accounts, adjusting entries, financial statements, and closing entries; optional end-of-period spreadsheet (work sheet)

The unadjusted trial balance of Laundry Basket at January 31, 2012, the end of the current fiscal year, is shown below.

Laundry Basket
Unadjusted Trial Balance
January 31, 2012

	Debit Balances	Credit Balances
Cash	3,480	
Laundry Supplies	9,000	
Prepaid Insurance	5,760	
Laundry Equipment	130,800	
Accumulated Depreciation		49,200
Accounts Payable		7,440
Stacy Martinell, Capital		45,360
Stacy Martinell, Drawing	2,400	
Laundry Revenue		198,000
Wages Expense	85,800	
Rent Expense	43,200	
Utilities Expense	16,320	
Miscellaneous Expense	3,240	
	300,000	300,000

The data needed to determine year-end adjustments are as follows:

a. Wages accrued but not paid at January 31 are $900.
b. Depreciation of equipment during the year is $7,000.
c. Laundry supplies on hand at January 31 are $2,100.
d. Insurance premiums expired during the year are $4,000.

Instructions

1. For each account listed in the unadjusted trial balance, enter the balance in a T account. Identify the balance as "Jan. 31 Bal." In addition, add T accounts for Wages Payable, Depreciation Expense, Laundry Supplies Expense, Insurance Expense, and Income Summary.
2. **Optional:** Enter the unadjusted trial balance on an end-of-period spreadsheet (work sheet) and complete the spreadsheet. Add the accounts listed in part (1) as needed.
3. Journalize and post the adjusting entries. Identify the adjustments by "Adj." and the new balances as "Adj. Bal."
4. Prepare an adjusted trial balance.
5. Prepare an income statement, a statement of owner's equity (no additional investments were made during the year), and a balance sheet.
6. Journalize and post the closing entries. Identify the closing entries by "Clos."
7. Prepare a post-closing trial balance.

OBJ. 2

✓ 4. Net income: $22,150

PR 4-4B Ledger accounts, adjusting entries, financial statements, and closing entries; optional end-of-period spreadsheet (work sheet)

If the working papers correlating with this textbook are not used, omit Problem 4-4B.

The ledger and trial balance of Sweetwater Services Co. as of July 31, 2012, the end of the first month of its current fiscal year, are presented in the working papers.

Data needed to determine the necessary adjusting entries are as follows:

a. Service revenue accrued at July 31 is $1,500.
b. Supplies on hand at July 31 are $3,800.
c. Insurance premiums expired during July are $1,200.
d. Depreciation of the building during July is $1,400.
e. Depreciation of equipment during July is $1,100.
f. Unearned rent at July 31 is $900.
g. Wages accrued but not paid at July 31 are $200.

Instructions

1. **Optional:** Complete the end-of-period spreadsheet (work sheet) using the adjustment data shown on the previous page.
2. Journalize and post the adjusting entries, inserting balances in the accounts affected.
3. Prepare an adjusted trial balance.
4. Prepare an income statement, a statement of owner's equity, and a balance sheet.
5. Journalize and post the closing entries. Indicate closed accounts by inserting a line in both Balance columns opposite the closing entry. Insert the new balance of the capital account.
6. Prepare a post-closing trial balance.

OBJ. 2, 3

✔ 5. Net income: $35,150

PR 4-5B Ledger accounts, adjusting entries, financial statements, and closing entries; optional end-of-period spreadsheet (work sheet)

The unadjusted trial balance of Oak and Brass Interiors at December 31, 2012, the end of the current year, is shown below.

Oak and Brass Interiors
Unadjusted Trial Balance
December 31, 2012

		Debit Balances	Credit Balances
11	Cash	3,100	
13	Supplies	6,000	
14	Prepaid Insurance	7,500	
16	Equipment	90,000	
17	Accumulated Depreciation—Equipment		12,000
18	Trucks	50,000	
19	Accumulated Depreciation—Trucks		27,100
21	Accounts Payable		4,500
31	Sally Kriebel, Capital		66,400
32	Sally Kriebel, Drawing	3,000	
41	Service Revenue		140,000
51	Wages Expense	72,000	
52	Rent Expense	7,600	
53	Truck Expense	5,350	
59	Miscellaneous Expense	5,450	
		250,000	250,000

The data needed to determine year-end adjustments are as follows:

a. Supplies on hand at December 31 are $1,750.
b. Insurance premiums expired during the year are $2,000.
c. Depreciation of equipment during the year is $5,000.
d. Depreciation of trucks during the year is $2,200.
e. Wages accrued but not paid at December 31 are $1,000.

Instructions

1. For each account listed in the unadjusted trial balance, enter the balance in the appropriate Balance column of a four-column account and place a check mark (✓) in the Posting Reference column.
2. **Optional:** Enter the unadjusted trial balance on an end-of-period spreadsheet (work sheet) and complete the spreadsheet. Add the accounts listed in part (3) as needed.
3. Journalize and post the adjusting entries, inserting balances in the accounts affected. Record the adjusting entries on Page 26 of the journal. The following additional accounts from Oak and Brass Interiors' chart of accounts should be used: Wages Payable, 22; Depreciation Expense—Equipment, 54; Supplies Expense, 55; Depreciation Expense—Trucks, 56; Insurance Expense, 57.
4. Prepare an adjusted trial balance.
5. Prepare an income statement, a statement of owner's equity (no additional investments were made during the year), and a balance sheet.

(Continued)

6. Journalize and post the closing entries. Record the closing entries on Page 27 of the journal. (Income Summary is account #33 in the chart of accounts.) Indicate closed accounts by inserting a line in both Balance columns opposite the closing entry.
7. Prepare a post-closing trial balance.

OBJ. 4, 5

✓ 8. Net income: $35,150

PR 4-6B Complete accounting cycle

For the past several years, Abby Brown has operated a part-time consulting business from her home. As of June 1, 2012, Abby decided to move to rented quarters and to operate the business, which was to be known as Square One Consulting, on a full-time basis. Square One Consulting entered into the following transactions during June:

June 1. The following assets were received from Abby Brown: cash, $30,000; accounts receivable, $7,500; supplies, $2,000; and office equipment, $15,000. There were no liabilities received.
1. Paid three months' rent on a lease rental contract, $6,000.
2. Paid the premiums on property and casualty insurance policies, $3,600.
4. Received cash from clients as an advance payment for services to be provided and recorded it as unearned fees, $5,000.
5. Purchased additional office equipment on account from Office Depot Co., $6,000.
6. Received cash from clients on account, $4,000.
10. Paid cash for a newspaper advertisement, $200.
12. Paid Office Depot Co. for part of the debt incurred on June 5, $1,200.
12. Recorded services provided on account for the period June 1–12, $13,000.
14. Paid part-time receptionist for two weeks' salary, $1,500.

Record the following transactions on Page 2 of the journal.

17. Recorded cash from cash clients for fees earned during the period June 1–16, $9,000.
18. Paid cash for supplies, $1,400.
20. Recorded services provided on account for the period June 13–20, $8,500.
24. Recorded cash from cash clients for fees earned for the period June 17–24, $6,300.
26. Received cash from clients on account, $12,100.
27. Paid part-time receptionist for two weeks' salary, $1,500.
29. Paid telephone bill for June, $150.
30. Paid electricity bill for June, $400.
30. Recorded cash from cash clients for fees earned for the period June 25–30, $3,900.
30. Recorded services provided on account for the remainder of June, $2,500.
30. Abby withdrew $10,000 for personal use.

Instructions

1. Journalize each transaction in a two-column journal starting on Page 1, referring to the following chart of accounts in selecting the accounts to be debited and credited. (Do not insert the account numbers in the journal at this time.)

11	Cash
12	Accounts Receivable
14	Supplies
15	Prepaid Rent
16	Prepaid Insurance
18	Office Equipment
19	Accumulated Depreciation
21	Accounts Payable
22	Salaries Payable
23	Unearned Fees
31	Abby Brown, Capital
32	Abby Brown, Drawing
41	Fees Earned
51	Salary Expense
52	Supplies Expense
53	Rent Expense
54	Depreciation Expense
55	Insurance Expense
59	Miscellaneous Expense

2. Post the journal to a ledger of four-column accounts.
3. Prepare an unadjusted trial balance.
4. At the end of June, the following adjustment data were assembled. Analyze and use these data to complete parts (5) and (6).
    a. Insurance expired during June is $200.
    b. Supplies on hand on June 30 are $600.
    c. Depreciation of office equipment for June is $250.
    d. Accrued receptionist salary on June 30 is $350.
    e. Rent expired during June is $2,500.
    f. Unearned fees on June 30 are $3,200.
5. **Optional:** Enter the unadjusted trial balance on an end-of-period spreadsheet (work sheet) and complete the spreadsheet.
6. Journalize and post the adjusting entries. Record the adjusting entries on Page 3 of the journal.
7. Prepare an adjusted trial balance.
8. Prepare an income statement, a statement of owner's equity, and a balance sheet.
9. Prepare and post the closing entries. Record the closing entries on Page 4 of the journal. (Income Summary is account #33 in the chart of accounts.) Indicate closed accounts by inserting a line in both the Balance columns opposite the closing entry.
10. Prepare a post-closing trial balance.

Continuing Problem

The unadjusted trial balance of PS Music as of July 31, 2012, along with the adjustment data for the two months ended July 31, 2012, are shown in Chapter 3.

Based upon the adjustment data, the adjusted trial balance shown below was prepared.

✔ 2. Net income: $6,210

PS Music
Adjusted Trial Balance
July 31, 2012

	Debit Balances	Credit Balances
Cash	10,510	
Accounts Receivable	4,750	
Supplies	400	
Prepaid Insurance	2,475	
Office Equipment	6,000	
Accumulated Depreciation—Office Equipment		75
Accounts Payable		7,080
Wages Payable		170
Unearned Revenue		3,600
Pat Sharpe, Capital		9,000
Pat Sharpe, Drawing	2,000	
Fees Earned		21,950
Wages Expense	2,970	
Office Rent Expense	2,550	
Equipment Rent Expense	1,300	
Utilities Expense	1,060	
Music Expense	3,610	
Advertising Expense	1,450	
Supplies Expense	1,030	
Insurance Expense	225	
Depreciation Expense	75	
Miscellaneous Expense	1,470	
	41,875	41,875

Instructions

1. **Optional.** Using the data from Chapter 3, prepare an end-of-period spreadsheet (work sheet).
2. Prepare an income statement, a statement of owner's equity, and a balance sheet. (*Note:* Pat Sharpe made investments in PS Music on June 1 and July 1, 2012.)
3. Journalize and post the closing entries. The income summary account is #33 in the ledger of PS Music. Indicate closed accounts by inserting a line in both Balance columns opposite the closing entry.
4. Prepare a post-closing trial balance.

Comprehensive Problem 1

✔ 8. Net income, $25,680

Kelly Pitney began her consulting business, Kelly Consulting, on April 1, 2012. The accounting cycle for Kelly Consulting for April, including financial statements, was illustrated on pages 165–175. During May, Kelly Consulting entered into the following transactions:

May 3. Received cash from clients as an advance payment for services to be provided and recorded it as unearned fees, $3,000.
5. Received cash from clients on account, $2,100.
9. Paid cash for a newspaper advertisement, $300.
13. Paid Office Station Co. for part of the debt incurred on April 5, $400.
15. Recorded services provided on account for the period May 1–15, $7,350.
16. Paid part-time receptionist for two weeks' salary including the amount owed on April 30, $750.

Record the following transactions on Page 6 of the journal.

17. Recorded cash from cash clients for fees earned during the period May 1–16, $6,150.
20. Purchased supplies on account, $600.
21. Recorded services provided on account for the period May 16–20, $6,175.
25. Recorded cash from cash clients for fees earned for the period May 17–23, $3,125.
27. Received cash from clients on account, $11,250.
28. Paid part-time receptionist for two weeks' salary, $750.
30. Paid telephone bill for May, $120.
31. Paid electricity bill for May, $290.
31. Recorded cash from cash clients for fees earned for the period May 26–31, $2,800.
31. Recorded services provided on account for the remainder of May, $1,900.
31. Kelly withdrew $15,000 for personal use.

Instructions

1. The chart of accounts for Kelly Consulting is shown on page 166, and the post-closing trial balance as of April 30, 2012, is shown on page 173. For each account in the post-closing trial balance, enter the balance in the appropriate Balance column of a four-column account. Date the balances May 1, 2012, and place a check mark (✓) in the Posting Reference column. Journalize each of the May transactions in a two-column journal starting on Page 5 of the journal and using Kelly Consulting's chart of accounts. (Do not insert the account numbers in the journal at this time.)
2. Post the journal to a ledger of four-column accounts.
3. Prepare an unadjusted trial balance.
4. At the end of May, the following adjustment data were assembled. Analyze and use these data to complete parts (5) and (6).
   a. Insurance expired during May is $300.
   b. Supplies on hand on May 31 are $750.
   c. Depreciation of office equipment for May is $330.

d. Accrued receptionist salary on May 31 is $300.
e. Rent expired during May is $1,600.
f. Unearned fees on May 31 are $1,500.

5. **Optional:** Enter the unadjusted trial balance on an end-of-period spreadsheet (work sheet) and complete the spreadsheet.
6. Journalize and post the adjusting entries. Record the adjusting entries on Page 7 of the journal.
7. Prepare an adjusted trial balance.
8. Prepare an income statement, a statement of owner's equity, and a balance sheet.
9. Prepare and post the closing entries. Record the closing entries on Page 8 of the journal. (Income Summary is account #33 in the chart of accounts.) Indicate closed accounts by inserting a line in both the Balance columns opposite the closing entry.
10. Prepare a post-closing trial balance.

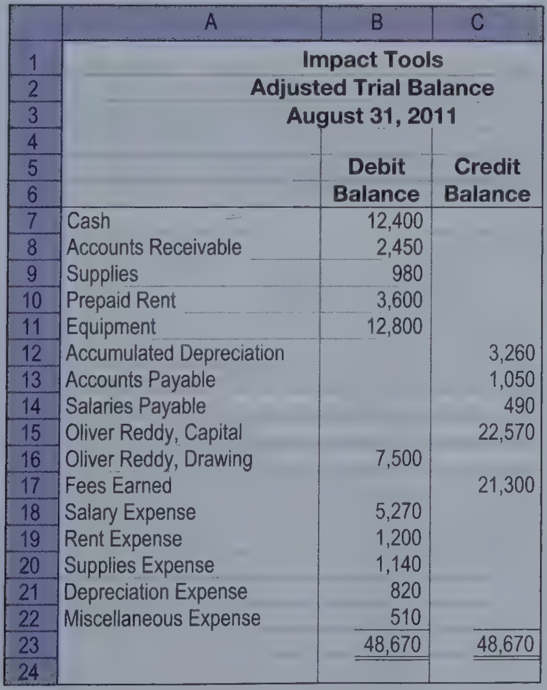
Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA 4-1 Financial statements

The end-of-month adjusted trial balance for Impact Tools was as follows:



	A	B	C
1	Impact Tools		
2	Adjusted Trial Balance		
3	August 31, 2011		
4			
5		Debit	Credit
6		Balance	Balance
7	Cash	12,400	
8	Accounts Receivable	2,450	
9	Supplies	980	
10	Prepaid Rent	3,600	
11	Equipment	12,800	
12	Accumulated Depreciation		3,260
13	Accounts Payable		1,050
14	Salaries Payable		490
15	Oliver Reddy, Capital		22,570
16	Oliver Reddy, Drawing	7,500	
17	Fees Earned		21,300
18	Salary Expense	5,270	
19	Rent Expense	1,200	
20	Supplies Expense	1,140	
21	Depreciation Expense	820	
22	Miscellaneous Expense	510	
23		48,670	48,670
24			

a. Open the Excel file *SA4-1_2e.*

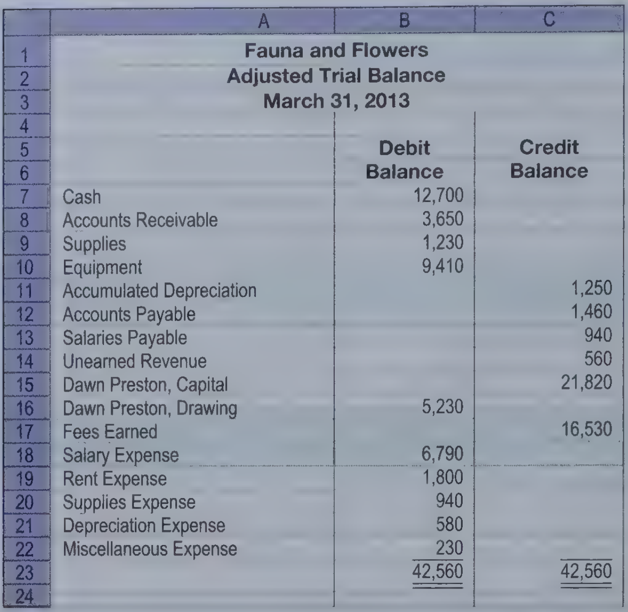
b. On the worksheet labeled FS, complete the income statement, statement of owner's equity, and balance sheet from the adjusted trial balance.

c. When you have completed the financial statements, perform a "save as," replacing the entire file name with the following:

SA3-1_2e[your first name initial]_[your last name]

SA 4-2 Financial statements

The end-of-month adjusted trial balance for Fauna and Flowers was as follows:



	A	B	C
1	Fauna and Flowers		
2	Adjusted Trial Balance		
3	March 31, 2013		
4			
5		Debit	Credit
6		Balance	Balance
7	Cash	12,700	
8	Accounts Receivable	3,650	
9	Supplies	1,230	
10	Equipment	9,410	
11	Accumulated Depreciation		1,250
12	Accounts Payable		1,460
13	Salaries Payable		940
14	Unearned Revenue		560
15	Dawn Preston, Capital		21,820
16	Dawn Preston, Drawing	5,230	
17	Fees Earned		16,530
18	Salary Expense	6,790	
19	Rent Expense	1,800	
20	Supplies Expense	940	
21	Depreciation Expense	580	
22	Miscellaneous Expense	230	
23		42,560	42,560
24			

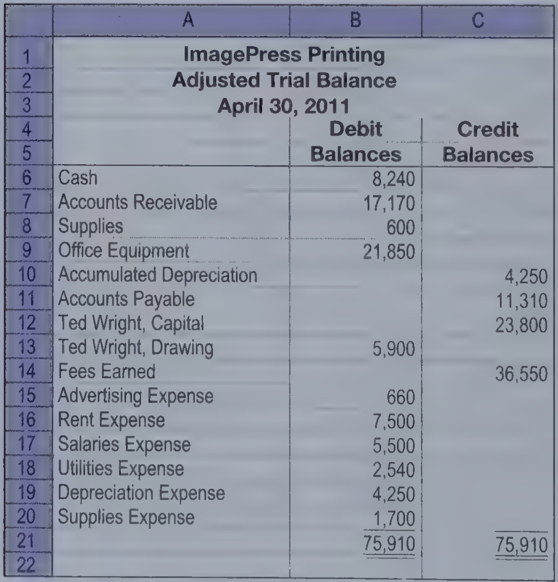
a. Open the Excel file *SA4-2_2e.*

b. On the worksheet labeled FS, complete the income statement, statement of owner'sequity and balance sheet from the adjusted trial balance.

c. When you have completed the creating the financial statements, perform a "save as," replacing the entire file name with the following:
SA4-2_2e[your first name initial]_[your last name]

SA 4-3 ImagePress—Financial Statements

ImagePress Printing's adjusted trial balance from SA3-3 is as follows:



	A	B	C
1	ImagePress Printing		
2	Adjusted Trial Balance		
3	April 30, 2011		
4		Debit	Credit
5		Balances	Balances
6	Cash	8,240	
7	Accounts Receivable	17,170	
8	Supplies	600	
9	Office Equipment	21,850	
10	Accumulated Depreciation		4,250
11	Accounts Payable		11,310
12	Ted Wright, Capital		23,800
13	Ted Wright, Drawing	5,900	
14	Fees Earned		36,550
15	Advertising Expense	660	
16	Rent Expense	7,500	
17	Salaries Expense	5,500	
18	Utilities Expense	2,540	
19	Depreciation Expense	4,250	
20	Supplies Expense	1,700	
21		75,910	75,910
22			

a. Open the Excel file *SA4-3_2e.*

b. On the worksheet labeled FS, prepare the income statement, statement of owner's equity, and balance sheet from the adjusted trial balance.

c. When you have completed the creating the financial statements, perform a "save as," replacing the entire file name with the following:
SA4-3_2e[your first name initial]_[your last name]

CHAPTER

5

rid/Jupiter Images

Accounting Systems

Intuit Inc.

Whether you realize it or not, you likely interact with accounting systems. For example, your bank statement is a type of accounting system. When you make a deposit, the bank records an addition to your cash; when you withdraw cash, the bank records a reduction in your cash. Such a simple accounting system works well for a person with just a few transactions per month. However, over time, you may find that your financial affairs will become more complex and involve many different types of transactions, including investments and loan payments. At this point, relying on your bank statement may not be sufficient for managing your financial affairs. Personal financial planning software, such as **Intuit**'s Quicken can be useful when your financial affairs become more complex.

What happens if you decide to begin a small business? Transactions expand to include customers, vendors, and employees. As a result, the accounting system will need to adjust to this complexity. Thus, many small businesses will use small-business accounting software, such as Intuit's QuickBooks, as their first accounting system. As a business grows, more sophisticated accounting systems will be needed. Companies such as **SAP**, **Oracle**, **Microsoft**, and **Sage Software, Inc.**, offer accounting system solutions for businesses that become larger with more complex accounting needs.

Accounting systems used by large and small businesses employ the basic principles of the accounting cycle discussed in the previous chapters. However, these accounting systems include features that simplify the recording and summary process. In this chapter, we will discuss these simplifying procedures as they apply to both manual and computerized systems.

Learning Objectives

After studying this chapter, you should be able to:	*Example Exercises*	*Page*
OBJ. 1 Define and describe an accounting system.		
Basic Accounting Systems		
OBJ. 2 Journalize and post transactions in a manual accounting system that uses subsidiary ledgers and special journals.		
Manual Accounting Systems		
Subsidiary Ledgers		
Special Journals		
Revenue Journal	**EE** 5-1	217
Cash Receipts Journal		
Accounts Receivable Control Account and Subsidiary Ledger	**EE** 5-2	220
Purchases Journal	**EE** 5-3	222
Cash Payments Journal		
Accounts Payable Control Account and Subsidiary Ledger	**EE** 5-4	225
OBJ. 3 Describe and illustrate the use of a computerized accounting system.		
Computerized Accounting Systems		
OBJ. 4 Describe the basic features of e-commerce.		
E-Commerce		
OBJ. 5 Use segment analysis in evaluating the operating performance of a company.		
Financial Analysis and Interpretation: Segment Analysis	**EE** 5-5	231

At a Glance 5 Page 231

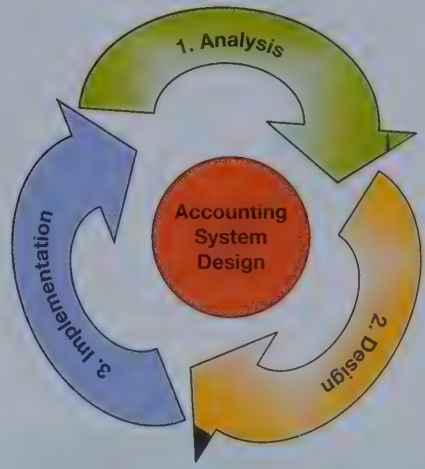
Basic Accounting Systems

OBJ. 1 Define and describe an accounting system.

In Chapters 1–4, an accounting system for NetSolutions was described and illustrated. An **accounting system** is the methods and procedures for collecting, classifying, summarizing, and reporting a business's financial and operating information. Most accounting systems, however, are more complex than NetSolutions'. For example, Southwest Airlines's accounting system not only records basic transaction data, but also records data on such items as ticket reservations, credit card collections, frequent-flier mileage, and aircraft maintenance.

As a business grows and changes, its accounting system also changes in a three-step process. This three-step process is as follows:

Step 1. *Analyze* user information needs.
Step 2. *Design* the system to meet the user needs.
Step 3. *Implement* the system.



For NetSolutions, our analysis determined that Chris Clark needed financial statements for the new business. We designed the system, using a basic manual system that included a chart of accounts, a two-column journal, and a general ledger. Finally, we implemented the system to record transactions and prepare financial statements.

Once a system has been implemented, input from users is used to analyze and improve the system. For example, in later chapters, NetSolutions expands its chart of accounts to record more complex transactions.

The accounting system design consists of:

1. internal controls and
2. information processing methods.

Internal controls are the policies and procedures that protect assets from misuse, ensure that business information is accurate, and ensure that laws and regulations are being followed. Internal controls are discussed in Chapter 8.

Processing methods are the means by which the accounting system collects, summarizes, and reports accounting information. These methods may be either *manual* or *computerized*. In the following sections, manual accounting systems that use special journals and subsidiary ledgers are described and illustrated. This is followed by a discussion of computerized accounting systems.

Manual Accounting Systems

OBJ. 2 Journalize and post transactions in a manual accounting system that uses subsidiary ledgers and special journals.

Accounting systems are manual or computerized. Understanding a manual accounting system is useful in identifying relationships between accounting data and reports. Also, most computerized systems use principles from manual systems.

In prior chapters, the transactions for NetSolutions were manually recorded in an all-purpose (two-column) journal. The journal entries were then posted individually to the accounts in the ledger. Such a system is simple to use and easy to understand when there are a small number of transactions. However, when a business has a large number of *similar* transactions, using an all-purpose journal is inefficient and impractical. In such cases, subsidiary ledgers and special journals are useful.

Subsidiary Ledgers

A large number of individual accounts with a common characteristic can be grouped together in a separate ledger called a **subsidiary ledger**. The primary ledger, which contains all of the balance sheet and income statement accounts, is then called the **general ledger**. Each subsidiary ledger is represented in the general ledger by a summarizing account, called a **controlling account**. The sum of the balances of the accounts in a subsidiary ledger must equal the balance of the related controlling account. Thus, a subsidiary ledger is a secondary ledger that supports a controlling account in the general ledger.

Two of the most common subsidiary ledgers are as follows:

1. Accounts receivable subsidiary ledger
2. Accounts payable subsidiary ledger

The **accounts receivable subsidiary ledger**, or *customers ledger*, lists the individual customer accounts in alphabetical order. The controlling account in the general ledger that summarizes the debits and credits to the individual customer accounts is Accounts Receivable.

The **accounts payable subsidiary ledger**, or *creditors ledger*, lists individual creditor accounts in alphabetical order. The related controlling account in the general ledger is Accounts Payable.

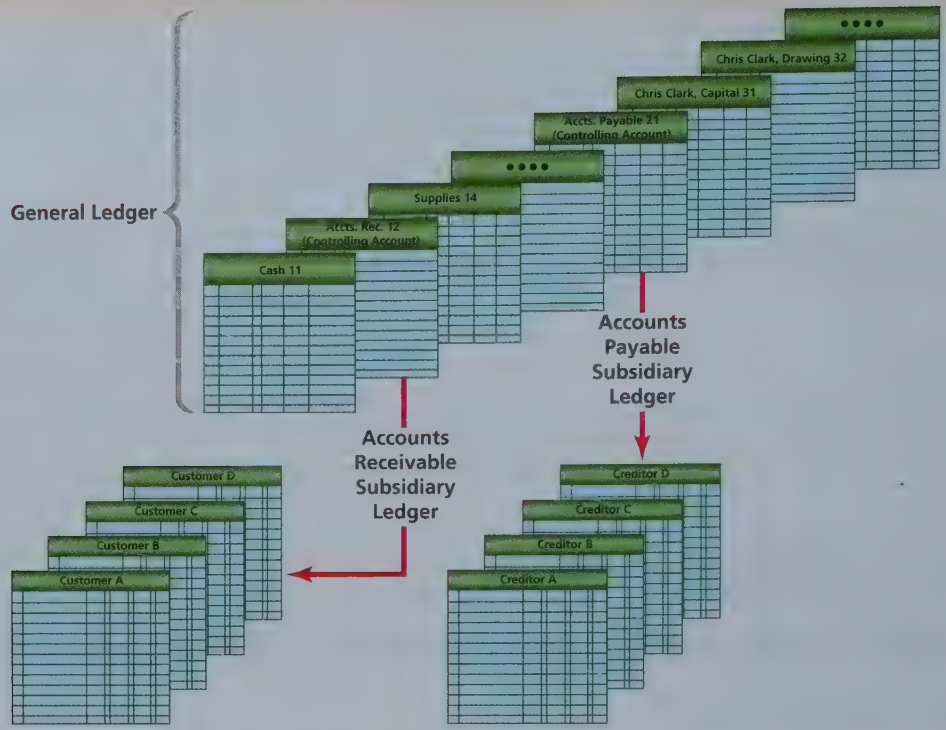
The relationship between the general ledger and the accounts receivable and accounts payable subsidiary ledgers is illustrated in Exhibit 1.

Many businesses use subsidiary ledgers for other accounts in addition to Accounts Receivable and Accounts Payable. For example, businesses often use an equipment subsidiary ledger to keep track of each item of equipment purchased, its cost, location, and other data.

Special Journals

One method of processing transactions more efficiently in a manual system is to use special journals. **Special journals** are designed to record a single kind of

EXHIBIT 1 General Ledger and Subsidiary Ledgers



transaction that occurs frequently. For example, since most businesses have many transactions in which cash is paid out, they will likely use a special journal for recording cash payments. Likewise, they will use another special journal for recording cash receipts.

The format and number of special journals that a business uses depends on the nature of the business. The common transactions and their related special journals used by small service businesses are as follows:

Providing services *on account*	recorded in →	**Revenue journal**
Receipt of cash from *any* source	recorded in →	**Cash receipts journal**
Purchase of items *on account*	recorded in →	**Purchases journal**
Payment of cash for *any* purpose	recorded in →	**Cash payments journal**

The all-purpose two-column journal, called the **general journal** or simply the *journal,* can be used for entries that do not fit into any of the special journals. For example, adjusting and closing entries are recorded in the general journal.

The following types of transactions, special journals, and subsidiary ledgers are described and illustrated for **NetSolutions**:

Transaction	Special Journal	Subsidiary Ledger
Fees earned on account	Revenue journal	Accounts receivable subsidiary ledger
Cash receipts	Cash receipts journal	Accounts receivable subsidiary ledger
Purchases on account	Purchases journal	Accounts payable subsidiary ledger
Cash payments	Cash payments journal	Accounts payable subsidiary ledger

As shown above, transactions that are recorded in the revenue and cash receipts journals will affect the accounts receivable subsidiary ledger. Likewise, transactions that are recorded in the purchases and cash payments journals will affect the accounts payable subsidiary ledger.

We will assume that NetSolutions had the following selected general ledger balances on March 1, 2012:

Account Number	Account	Balance
11	Cash	$6,200
12	Accounts Receivable	3,400
14	Supplies	2,500
18	Office Equipment	2,500
21	Accounts Payable	1,230

Revenue Journal

Fees earned on account would be recorded in the **revenue journal**. *Cash fees earned* would be recorded in the cash receipts journal.

To illustrate the efficiency of using a revenue journal, an example for NetSolutions is used. Specifically, assume that NetSolutions recorded the following four revenue transactions for March in its general journal:

2012					
Mar.	2	Accounts Receivable—Accessories By Claire	12/✓	2,200	
		Fees Earned	41		2,200
	6	Accounts Receivable—RapZone	12/✓	1,750	
		Fees Earned	41		1,750
	18	Accounts Receivable—Web Cantina	12/✓	2,650	
		Fees Earned	41		2,650
	27	Accounts Receivable—Accessories By Claire	12/✓	3,000	
		Fees Earned	41		3,000

For the above entries, NetSolutions recorded eight account titles and eight amounts. In addition, NetSolutions made 12 postings to the ledgers—four to Accounts Receivable in the general ledger, four to the accounts receivable subsidiary ledger (indicated by each check mark), and four to Fees Earned in the general ledger.

The preceding revenue transactions could be recorded more efficiently in a revenue journal, as shown in Exhibit 2. In each revenue transaction, the amount of the debit to Accounts Receivable is the same as the amount of the credit to Fees Earned. Thus, only a single amount column is necessary. The date, invoice number, customer name, and amount are entered separately for each transaction.

Revenues are normally recorded in the revenue journal when the company sends an invoice to the customer. An **invoice** is the bill that is sent to the customer by the company. Each invoice is normally numbered in sequence for future reference.

To illustrate, assume that on March 2 NetSolutions issued Invoice No. 615 to Accessories By Claire for fees earned of $2,200. This transaction is entered in the revenue journal, shown in Exhibit 2, by entering the following items:

1. Date column: *Mar. 2*
2. Invoice No. column: *615*

EXHIBIT 2 **Revenue Journal**

Revenue Journal Page 35

Date		Invoice No.	Account Debited	Post. Ref.	Accts. Rec. Dr. Fees Earned Cr.
2012					
Mar.	2	615	Accessories By Claire		2,200
	6	616	RapZone		1,750
	18	617	Web Cantina		2,650
	27	618	Accessories By Claire		3,000
	31				9,600

3. Account Debited column: *Accessories By Claire*
4. Accts. Rec. Dr./Fees Earned Cr. column: *2,200*

The process of posting from a revenue journal, shown in Exhibit 3, is as follows:

1. Each transaction is posted individually to a customer account in the accounts receivable subsidiary ledger. Postings to customer accounts should be made on a regular basis. In this way, the customer's account will show a current balance. Since the balances in the customer accounts are usually debit balances, the three-column account form is shown in Exhibit 3.

   To illustrate, Exhibit 3 shows the posting of the $2,200 debit to Accessories By Claire in the accounts receivable subsidiary ledger. After the posting, Accessories By Claire has a debit balance of $2,200.

2. To provide a trail of the entries posted to the subsidiary and general ledger, the source of these entries is indicated in the Posting Reference column of each account by inserting the letter R (for revenue journal) and the page number of the revenue journal.

   To illustrate, Exhibit 3 shows that after $2,200 is posted to Accessories By Claire's account, R35 is inserted into the Post. Ref. column of the account.

3. To indicate that the transaction has been posted to the accounts receivable subsidiary ledger, a check mark (✓) is inserted in the Post. Ref. column of the revenue journal, as shown in Exhibit 3.

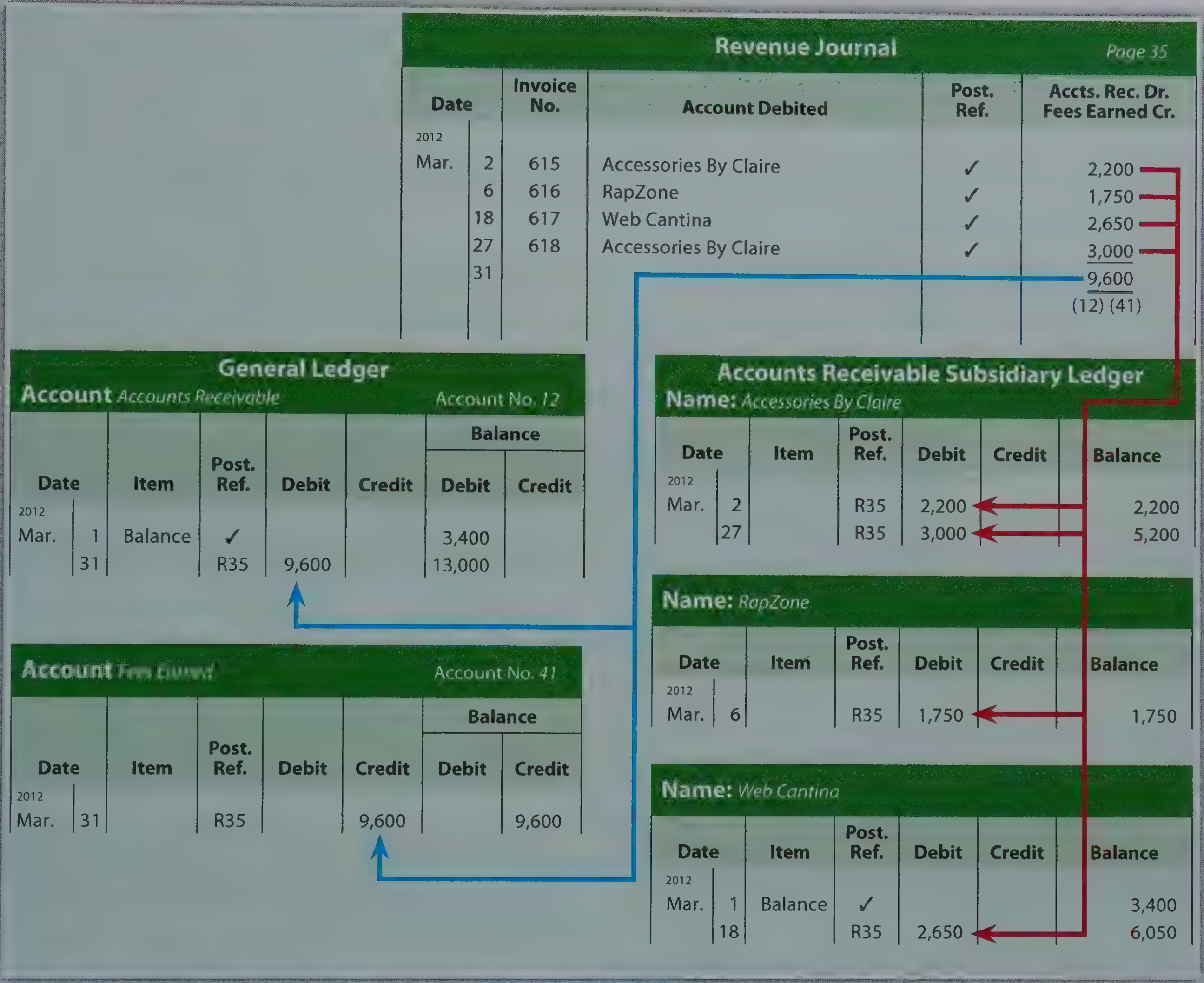
   To illustrate, Exhibit 3 shows that a check mark (✓) has been inserted in the Post. Ref. column next to Accessories By Claire in the revenue journal to indicate that the $2,200 has been posted.

4. A single monthly total is posted to Accounts Receivable and Fees Earned in the general ledger. This total is equal to the sum of the month's debits to the individual accounts in the subsidiary ledger. It is posted in the general ledger as a debit to Accounts Receivable and a credit to Fees Earned, as shown in Exhibit 3. The accounts receivable account number (12) and the fees earned account number (41) are then inserted below the total in the revenue journal to indicate that the posting is completed.

   To illustrate, Exhibit 3 shows the monthly total of $9,600 was posted as a debit to Accounts Receivable (12) and as a credit to Fees Earned (41).

Exhibit 3 illustrates the efficiency gained by using the revenue journal rather than the general journal. Specifically, all of the transactions for fees earned during the month are posted to the general ledger only once—at the end of the month.

EXHIBIT 3 Revenue Journal and Postings



Revenue Journal *Page 35*

Date		Invoice No.	Account Debited	Post. Ref.	Accts. Rec. Dr. Fees Earned Cr.
2012 Mar.	2	615	Accessories By Claire	✓	2,200
	6	616	RapZone	✓	1,750
	18	617	Web Cantina	✓	2,650
	27	618	Accessories By Claire	✓	3,000
	31				9,600
					(12) (41)

General Ledger

Account *Accounts Receivable* Account No. *12*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012 Mar.	1	Balance	✓			3,400	
	31		R35	9,600		13,000	

Account *Fees Earned* Account No. *41*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012 Mar.	31		R35		9,600		9,600

Accounts Receivable Subsidiary Ledger

Name: *Accessories By Claire*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012 Mar.	2		R35	2,200		2,200
	27		R35	3,000		5,200

Name: *RapZone*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012 Mar.	6		R35	1,750		1,750

Name: *Web Cantina*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012 Mar.	1	Balance	✓			3,400
	18		R35	2,650		6,050

Example Exercise 5-1 Revenue Journal

OBJ. 2

The following revenue transactions occurred during December:

Dec. 5. Issued Invoice No. 302 to Butler Company for services provided on account, $5,000.
9. Issued Invoice No. 303 to JoJo Enterprises for services provided on account, $2,100.
15. Issued Invoice No. 304 to Double D Inc. for services provided on account, $3,250.

Record these transactions in a revenue journal as illustrated in Exhibit 2.

Follow My Example 5-1

REVENUE JOURNAL

Date	Invoice No.	Account Debited	Post. Ref.	Accts. Rec. Dr. Fees Earned Cr.
Dec. 5	302	Butler Company		5,000
9	303	JoJo Enterprises		2,100
15	304	Double D Inc.		3,250

Practice Exercises: **PE 5-1A, PE 5-1B**

Cash Receipts Journal

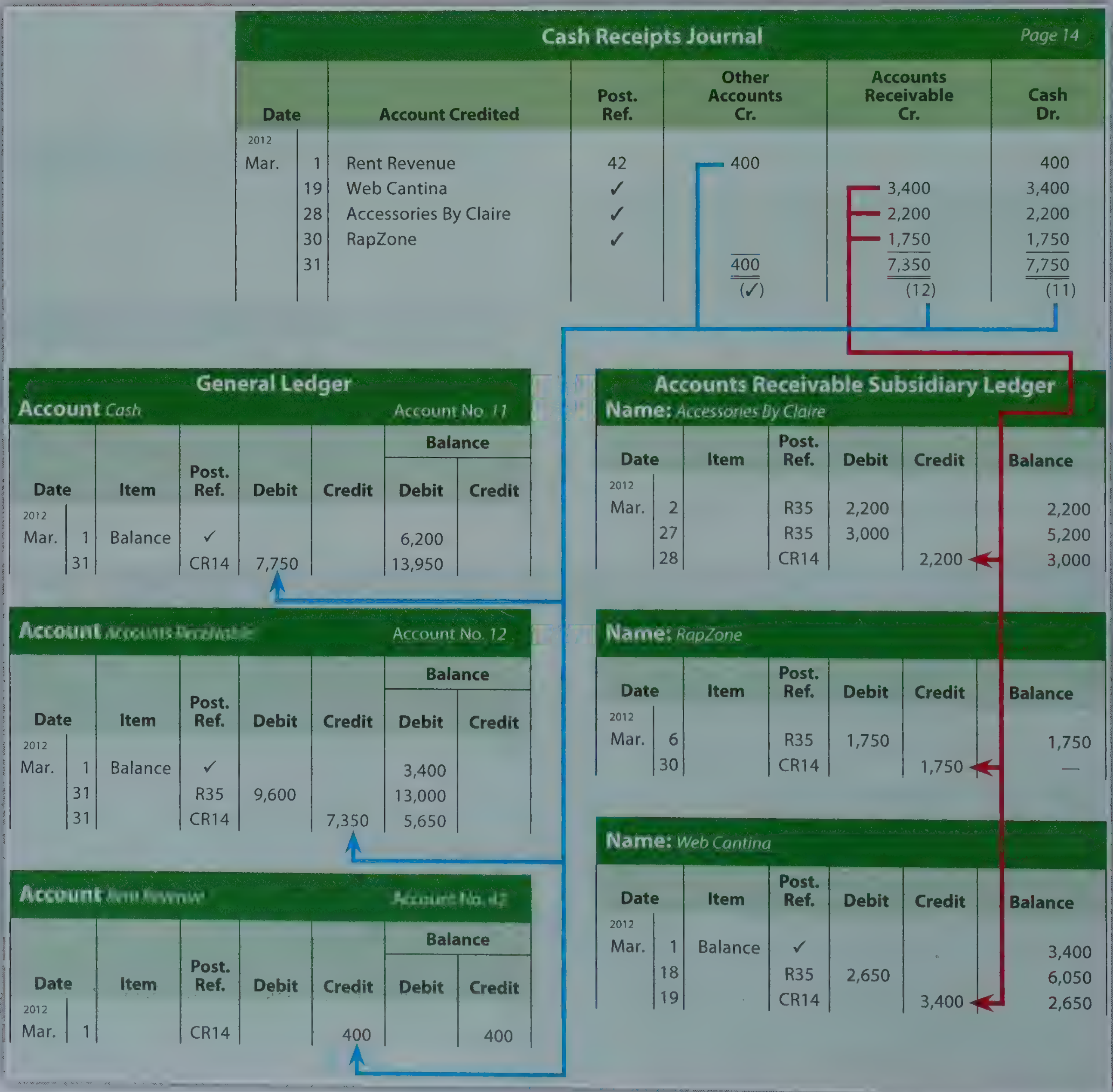
All transactions that involve the receipt of cash are recorded in a **cash receipts journal**. The cash receipts journal for NetSolutions is shown in Exhibit 4.

The cash receipts journal shown in Exhibit 4 has a Cash Dr. column. The kinds of transactions in which cash is received and how often they occur determine the titles of the other columns. For example, NetSolutions often receives cash from customers on account. Thus, the cash receipts journal in Exhibit 4 has an Accounts Receivable Cr. column.

To illustrate, on March 28 Accessories By Claire made a payment of $2,200 on its account. This transaction is recorded in the cash receipts journal, shown in Exhibit 4, by entering the following items:

1. Date column: *Mar. 28*
2. Account Credited column: *Accessories By Claire*

EXHIBIT 4 Cash Receipts Journal and Postings



Cash Receipts Journal *Page 14*

Date		Account Credited	Post. Ref.	Other Accounts Cr.	Accounts Receivable Cr.	Cash Dr.
2012						
Mar.	1	Rent Revenue	42	400		400
	19	Web Cantina	✓		3,400	3,400
	28	Accessories By Claire	✓		2,200	2,200
	30	RapZone	✓		1,750	1,750
	31			400	7,350	7,750
				(✓)	(12)	(11)

General Ledger

Account *Cash* Account No. *11*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012							
Mar.	1	Balance	✓			6,200	
	31		CR14	7,750		13,950	

Account *Accounts Receivable* Account No. *12*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012							
Mar.	1	Balance	✓			3,400	
	31		R35	9,600		13,000	
	31		CR14		7,350	5,650	

Account *Rent Revenue* Account No. *42*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012							
Mar.	1		CR14		400		400

Accounts Receivable Subsidiary Ledger

Name: *Accessories By Claire*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	2		R35	2,200		2,200
	27		R35	3,000		5,200
	28		CR14		2,200	3,000

Name: *RapZone*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	6		R35	1,750		1,750
	30		CR14		1,750	—

Name: *Web Cantina*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	1	Balance	✓			3,400
	18		R35	2,650		6,050
	19		CR14		3,400	2,650

3. Accounts Receivable Cr. column: *2,200*
4. Cash Dr. column: *2,200*

The Other Accounts Cr. column in Exhibit 4 is used for recording credits to any account for which there is no special credit column. For example, NetSolutions received cash on March 1 for rent. Since no special column exists for Rent Revenue, Rent Revenue is entered in the Account Credited column. Thus, this transaction is recorded in the cash receipts journal, shown in Exhibit 4, by entering the following items:

1. Date column: *Mar. 1*
2. Account Credited column: *Rent Revenue*
3. Other Accounts Cr. column: *400*
4. Cash Dr. column: *400*

At the end of the month, all of the amount columns are totaled. The debits must equal the credits. If the debits do not equal the credits, an error has occurred. Before proceeding further, the error must be found and corrected.

The process of posting from the cash receipts journal, shown in Exhibit 4, is:

1. Each transaction involving the receipt of cash on account is posted individually to a customer account in the accounts receivable subsidiary ledger. Postings to customer accounts should be made on a regular basis. In this way, the customer's account will show a current balance.

   To illustrate, Exhibit 4 shows on March 19 the receipt of $3,400 on account from Web Cantina. The posting of the $3,400 credit to Web Cantina in the accounts receivable subsidiary ledger is also shown in Exhibit 4. After the posting, Web Cantina has a debit balance of $2,650. If a posting results in a customer's account with a credit balance, the credit balance is indicated by an asterisk or parentheses in the Balance column. If an account's balance is zero, a line may be drawn in the Balance column.
2. To provide a trail of the entries posted to the subsidiary ledger, the source of these entries is indicated in the Posting Reference column of each account by inserting the letter CR (for cash receipts journal) and the page number of the cash receipts journal.

   To illustrate, Exhibit 4 shows that after $3,400 is posted to Web Cantina's account in the accounts receivable subsidiary ledger, CR14 is inserted into the Post. Ref. column of the account.
3. To indicate that the transaction has been posted to the accounts receivable subsidiary ledger, a check mark (✓) is inserted in the Posting Reference column of the cash receipts journal.

   To illustrate, Exhibit 4 shows that a check mark (✓) has been inserted in the Post. Ref. column next to Web Cantina to indicate that the $3,400 has been posted.
4. A single monthly total of the Accounts Receivable Cr. column is posted to the accounts receivable general ledger account. This is the total cash received on account and is posted as a credit to Accounts Receivable. The accounts receivable account number (12) is then inserted below the Accounts Receivable Cr. column to indicate that the posting is complete.

   To illustrate, Exhibit 4 shows the monthly total of $7,350 was posted as a credit to Accounts Receivable (12).
5. A single monthly total of the Cash Dr. column is posted to the cash general ledger account. This is the total cash received during the month and is posted as a debit to Cash. The cash account number (11) is then inserted below the Cash Dr. column to indicate that the posting is complete.

   To illustrate, Exhibit 4 shows the monthly total of $7,750 was posted as a debit to Cash (11).
6. The accounts listed in the Other Accounts Cr. column are posted on a regular basis as a separate credit to each account. The account number is then inserted in the Post. Ref. column to indicate that the posting is complete. Because accounts in the Other Accounts Cr. column are posted individually, a check mark is placed below the column total at the end of the month to show that no further action is needed.

   To illustrate, Exhibit 4 shows that $400 was posted as a credit to Rent Revenue in the general ledger, and the rent revenue account number (42) was entered in the Post. Ref. column of the cash receipts journal. Also, at the end of the month a check mark (✓) is entered below the Other Accounts Cr. column to indicate that no further action is needed.

Accounts Receivable Control Account and Subsidiary Ledger

After all posting has been completed for the month, the balances in the accounts receivable subsidiary ledger should be totaled. This total should then be compared with the balance of the accounts receivable controlling account in the general ledger. If the controlling account and the subsidiary ledger do not agree, an error has occurred. Before proceeding further, the error must be located and corrected.

The total of NetSolutions' accounts receivable subsidiary ledger is $5,650. This total agrees with the balance of its accounts receivable control account on March 31, 2012, as shown below.

Accounts Receivable
(Control)

Balance, March 1, 2012	$ 3,400
Total debits (from revenue journal)	9,600
Total credits (from cash receipts journal)	(7,350)
Balance, March 31, 2012	$ 5,650

NetSolutions
Accounts Receivable Customer Balances
March 31, 2012

Accessories By Claire	$3,000
RapZone	0
Web Cantina	2,650
Total accounts receivable	$5,650

Equal debit balances

Example Exercise 5-2 Accounts Receivable Subsidiary Ledger

OBJ 2

The debits and credits from two transactions are presented in the following customer account:

NAME *Sweet Tooth Confections*
ADDRESS *1212 Lombard St.*

Date	Item	Post. Ref.	Debit	Credit	Balance
July 1	Balance				625
7	Invoice 35	R12	86		711
31	Invoice 31	CR4		122	589

Describe each transaction and the source of each posting.

Follow My Example 5-2

July 7. Provided $86 of services on account to Sweet Tooth Confections, itemized on Invoice No. 35. Amount posted from page 12 of the revenue journal.
31. Collected cash of $122 from Sweet Tooth Confections (Invoice No. 31). Amount posted from page 4 of the cash receipts journal.

Practice Exercises: **PE 5-2A, PE 5-2B**

Purchases Journal

All *purchases on account* are recorded in the **purchases journal**. *Cash purchases would be recorded in the cash payments journal.* The purchases journal for NetSolutions is shown in Exhibit 5.

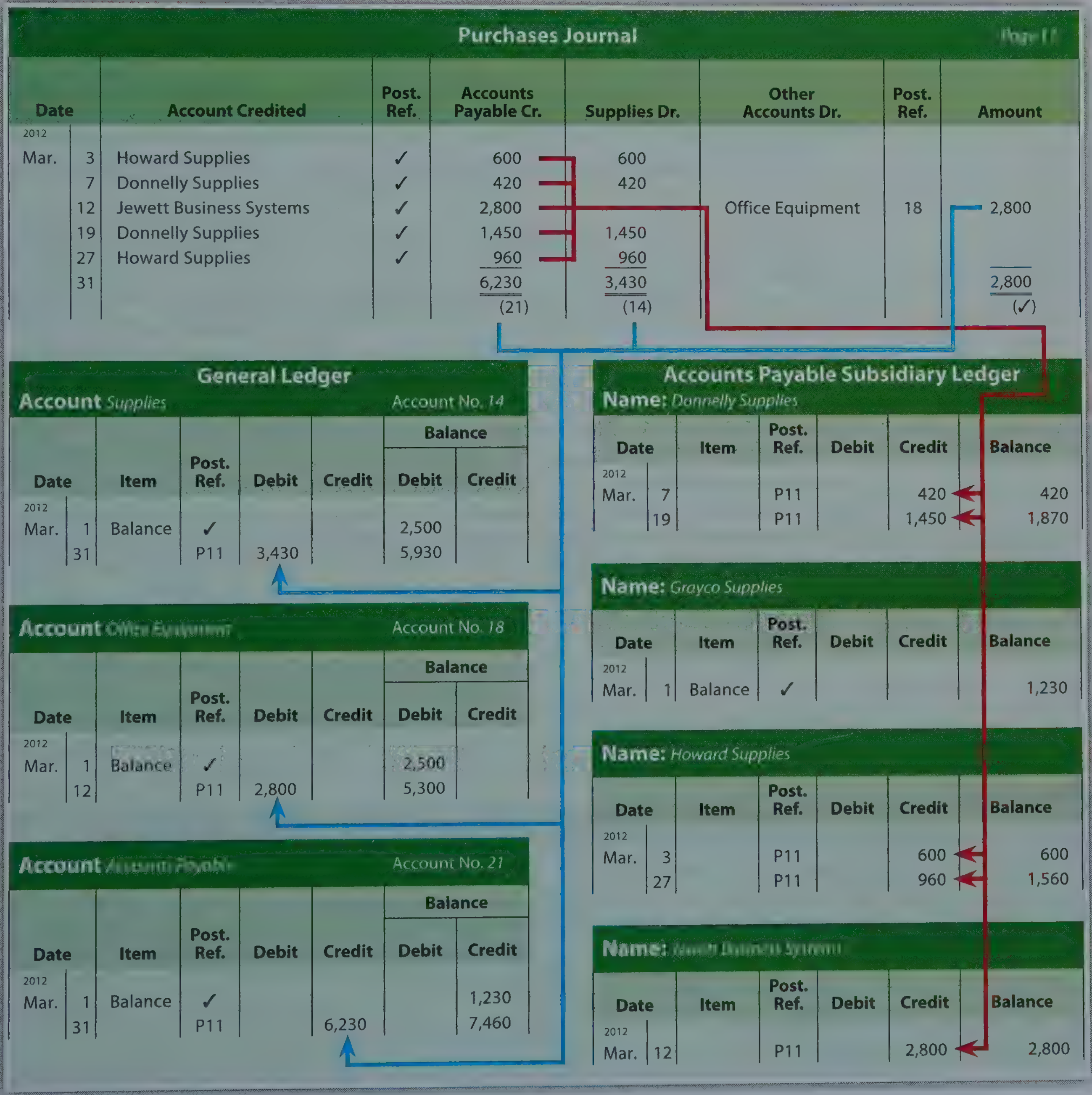
The amounts purchased on account are recorded in the purchases journal in an Accounts Payable Cr. column. The items most often purchased on account determine the titles of the other columns. For example, NetSolutions often purchases supplies on account. Thus, the purchases journal in Exhibit 5 has a Supplies Dr. column.

To illustrate, on March 3 NetSolutions purchased $600 of supplies on account from Howard Supplies. This transaction is recorded in the purchases journal, shown in Exhibit 5, by entering the following items:

1. Date column: *Mar. 3*
2. Account Credited column: *Howard Supplies*
3. Accounts Payable Cr. column: *600*
4. Supplies Dr. column: *600*

The Other Accounts Dr. column in Exhibit 5 is used to record purchases on account of any item for which there is no special debit column. The title of the account to be debited is entered in the Other Accounts Dr. column, and the amount is entered in the Amount column.

EXHIBIT 5 **Purchases Journal and Postings**



Purchases Journal Page 11

Date		Account Credited	Post. Ref.	Accounts Payable Cr.	Supplies Dr.	Other Accounts Dr.	Post. Ref.	Amount
2012								
Mar.	3	Howard Supplies	✓	600	600			
	7	Donnelly Supplies	✓	420	420			
	12	Jewett Business Systems	✓	2,800		Office Equipment	18	2,800
	19	Donnelly Supplies	✓	1,450	1,450			
	27	Howard Supplies	✓	960	960			
	31			6,230	3,430			2,800
				(21)	(14)			(✓)

General Ledger

Account *Supplies* Account No. *14*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012							
Mar.	1	Balance	✓			2,500	
	31		P11	3,430		5,930	

Account *Office Equipment* Account No. *18*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012							
Mar.	1	Balance	✓			2,500	
	12		P11	2,800		5,300	

Account *Accounts Payable* Account No. *21*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012							
Mar.	1	Balance	✓				1,230
	31		P11		6,230		7,460

Accounts Payable Subsidiary Ledger

Name: *Donnelly Supplies*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	7		P11		420	420
	19		P11		1,450	1,870

Name: *Grayco Supplies*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	1	Balance	✓			1,230

Name: *Howard Supplies*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	3		P11		600	600
	27		P11		960	1,560

Name: *Jewett Business Systems*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	12		P11		2,800	2,800

To illustrate, on March 12 NetSolutions purchased office equipment on account from Jewett Business Systems for $2,800. This transaction is recorded in the purchases journal shown in Exhibit 5 by entering the following items:

1. Date column: *Mar. 12*
2. Account Credited column: *Jewett Business Systems*
3. Accounts Payable Cr. column: *2,800*
4. Other Accounts Dr. column: *Office Equipment*
5. Amount column: *2,800*

At the end of the month, all of the amount columns are totaled. The debits must equal the credits. If the debits do not equal the credits, an error has occurred. Before proceeding further, the error must be found and corrected.

The process of posting from the purchases journal shown in Exhibit 5 is as follows:

1. Each transaction involving a purchase on account is posted individually to a creditor's account in the accounts payable subsidiary ledger. Postings to creditor accounts should be made on a regular basis. In this way, the creditor's account will show a current balance.

   To illustrate, Exhibit 5 shows on March 3 the purchase of supplies of $600 on account from Howard Supplies. The posting of the $600 credit to Howard Supplies accounts payable subsidiary ledger is also shown in Exhibit 5. After the posting, Howard Supplies has a credit balance of $600.
2. To provide a trail of the entries posted to the subsidiary and general ledgers, the source of these entries is indicated in the Posting Reference column of each account by inserting the letter P (for purchases journal) and the page number of the purchases journal.

   To illustrate, Exhibit 5 shows that after $600 is posted to Howard Supplies account, P11 is inserted into the Post. Ref. column of the account.
3. To indicate that the transaction has been posted to the accounts payable subsidiary ledger, a check mark (✓) is inserted in the Posting Reference column of the purchases journal, as shown in Exhibit 5.

   To illustrate, Exhibit 5 shows that a check mark (✓) has been inserted in the Post. Ref. column next to Howard Supplies to indicate that the $600 has been posted.
4. A single monthly total of the Accounts Payable Cr. column is posted to the accounts payable general ledger account. This is the total amount purchased on account and is posted as a credit to Accounts Payable. The accounts payable account number (21) is then inserted below the Accounts Payable Cr. column to indicate that the posting is complete.

   To illustrate, Exhibit 5 shows the monthly total of $6,230 was posted as a credit to Accounts Payable (21).
5. A single monthly total of the Supplies Dr. column is posted to the supplies general ledger account. This is the total supplies purchased on account during the month and is posted as a debit to Supplies. The supplies account number (14) is then inserted below the Supplies Dr. column to indicate that the posting is complete.

   To illustrate, Exhibit 5 shows the monthly total of $3,430 was posted as a debit to Supplies (14).
6. The accounts listed in the Other Accounts Dr. column are posted on a regular basis as a separate debit to each account. The account number is then inserted in the Post. Ref. column to indicate that the posting is complete. Because accounts in the Other Accounts Dr. column are posted individually, a check mark is placed below the column total at the end of the month to show that no further action is needed.

Example Exercise 5-3 Purchases Journal

OBJ. 2

The following purchase transactions occurred during October for Helping Hand Cleaners:

Oct. 11. Purchased cleaning supplies for $235, on account, from General Supplies.
19. Purchased cleaning supplies for $110, on account, from Hubble Supplies.
24. Purchased office equipment for $850, on account, from Office Warehouse.

Record these transactions in a purchases journal as illustrated at the top of Exhibit 5.

Follow My Example 5-3

PURCHASES JOURNAL

Date	Account Credited	Post. Ref.	Accounts Payable Cr.	Cleaning Supplies Dr.	Other Accounts Dr.	Post. Ref.	Amount
Oct. 11	General Supplies		235	235			
19	Hubble Supplies		110	110			
24	Office Warehouse		850		Office Equipment		850

Practice Exercises: **PE 5-3A, PE 5-3B**

To illustrate, Exhibit 5 shows that $2,800 was posted as a debit to Office Equipment in the general ledger, and the office equipment account number (18) was entered in the Post. Ref. column of the purchases journal. Also, at end of month, a check mark (✓) is entered below the Amount column to indicate no further action is needed.

Cash Payments Journal

All transactions that involve the payment of cash are recorded in a **cash payments journal**. The cash payments journal for NetSolutions is shown in Exhibit 6.

The cash payments journal shown in Exhibit 6 has a Cash Cr. column. The kinds of transactions in which cash is paid and how often they occur determine the titles of the other columns. For example, NetSolutions often pays cash to creditors on account. Thus, the cash payments journal in Exhibit 6 has an Accounts Payable Dr. column. In addition, NetSolutions makes all payments by check. Thus, a check number is entered for each payment in the Ck. No. (Check Number) column to the right of the Date column. The check numbers are helpful in controlling cash payments and provide a useful cross-reference.

To illustrate, on March 15 NetSolutions issued Check No. 151 for $1,230 to Grayco Supplies for payment on its account. This transaction is recorded in the cash payments journal shown in Exhibit 6 by entering the following items:

1. Date column: *Mar. 15*
2. Ck. No. column: *151*
3. Account Debited column: *Grayco Supplies*
4. Accounts Payable Dr. column: *1,230*
5. Cash Cr. column: *1,230*

The Other Accounts Dr. column in Exhibit 6 is used for recording debits to any account for which there is no special debit column. For example, NetSolutions issued Check No. 150 on March 2 for $1,600 in payment of March rent. This transaction is recorded in the cash payments journal, shown in Exhibit 6, by entering these items:

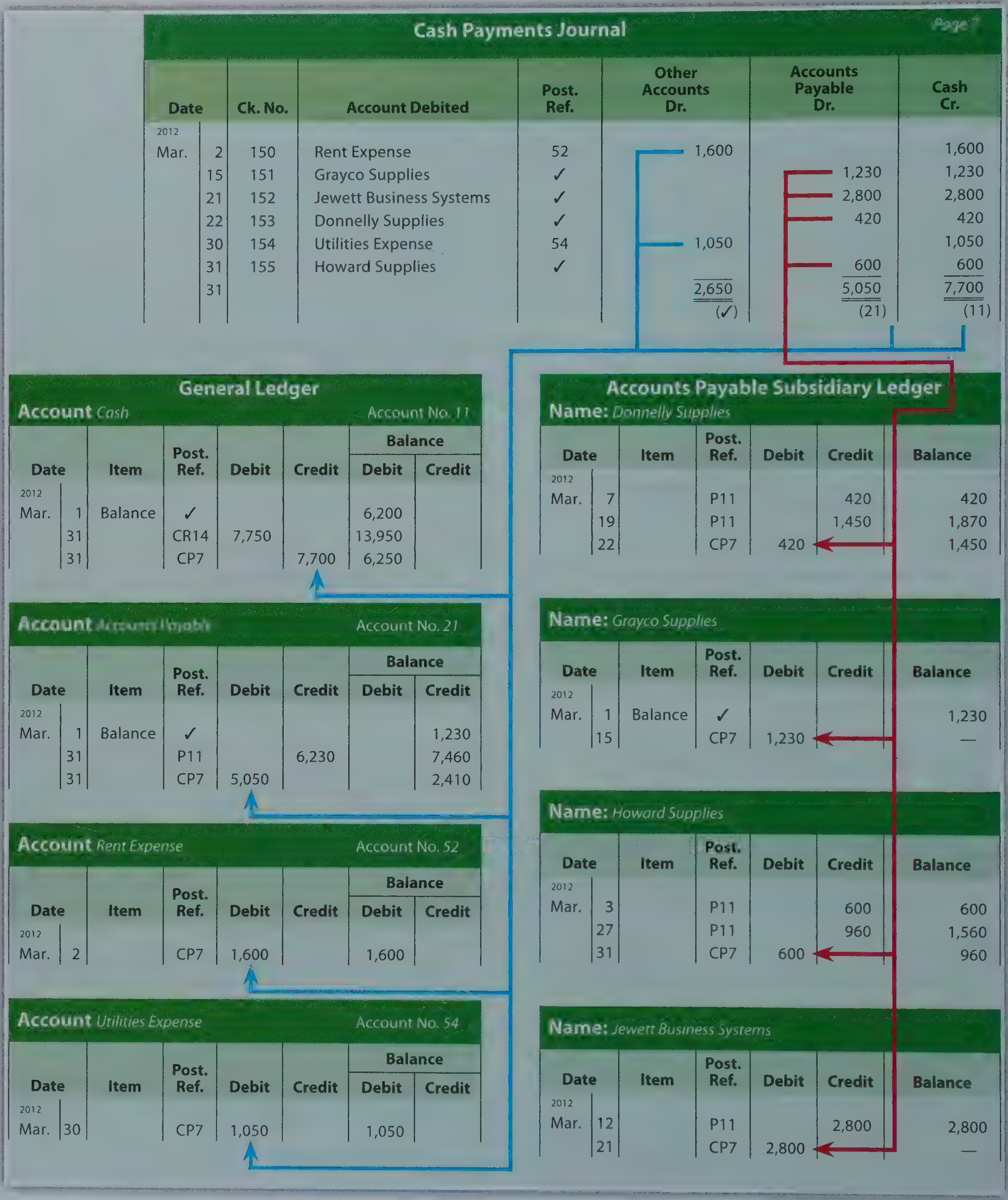
1. Date column: *Mar. 2*
2. Ck. No. column: *150*
3. Account Debited column: *Rent Expense*
4. Other Accounts Dr. column: *1,600*
5. Cash Cr. column: *1,600*

At the end of the month, all of the amount columns are totaled. The debits must equal the credits. If the debits do not equal the credits, an error has occurred. Before proceeding further, the error must be found and corrected.

The process of posting from the cash payments journal, Exhibit 6, is as follows:

1. Each transaction involving the payment of cash on account is posted individually to a creditor account in the accounts payable subsidiary ledger. Postings to creditor accounts should be made on a regular basis. In this way, the creditor's account will show a current balance.
   To illustrate, Exhibit 6 shows on March 22 the payment of $420 on account to Donnelly Supplies. The posting of the $420 debit to Donnelly Supplies in the accounts payable subsidiary ledger is also shown in Exhibit 6. After the posting, Donnelly Supplies has a credit balance of $1,450.
2. To provide a trail of the entries posted to the subsidiary and general ledgers, the source of these entries is indicated in the Posting Reference column of each account by inserting the letter CP (for cash payments journal) and the page number of the cash payments journal.
   To illustrate, Exhibit 6 shows that after $420 is posted to Donnelly Supplies account, CP7 is inserted into the Post. Ref. column of the account.
3. To indicate that the transaction has been posted to the accounts payable subsidiary ledger, a check mark (✓) is inserted in the Posting Reference column of the cash payments journal.
   To illustrate, Exhibit 6 shows that a check mark (✓) has been inserted in the Post. Ref. column next to Donnelly Supplies to indicate that the $420 has been posted.

EXHIBIT 6 Cash Payments Journal and Postings



Cash Payments Journal

Page 7

Date		Ck. No.	Account Debited	Post. Ref.	Other Accounts Dr.	Accounts Payable Dr.	Cash Cr.
2012							
Mar.	2	150	Rent Expense	52	1,600		1,600
	15	151	Grayco Supplies	✓		1,230	1,230
	21	152	Jewett Business Systems	✓		2,800	2,800
	22	153	Donnelly Supplies	✓		420	420
	30	154	Utilities Expense	54	1,050		1,050
	31	155	Howard Supplies	✓		600	600
	31				2,650	5,050	7,700
					(✓)	(21)	(11)

General Ledger

Account *Cash* Account No. *11*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012							
Mar.	1	Balance	✓			6,200	
	31		CR14	7,750		13,950	
	31		CP7		7,700	6,250	

Account *Accounts Payable* Account No. *21*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012							
Mar.	1	Balance	✓				1,230
	31		P11		6,230		7,460
	31		CP7	5,050			2,410

Account *Rent Expense* Account No. *52*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012							
Mar.	2		CP7	1,600		1,600	

Account *Utilities Expense* Account No. *54*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012							
Mar.	30		CP7	1,050		1,050	

Accounts Payable Subsidiary Ledger

Name: *Donnelly Supplies*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	7		P11		420	420
	19		P11		1,450	1,870
	22		CP7	420		1,450

Name: *Grayco Supplies*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	1	Balance	✓			1,230
	15		CP7	1,230		—

Name: *Howard Supplies*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	3		P11		600	600
	27		P11		960	1,560
	31		CP7	600		960

Name: *Jewett Business Systems*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	12		P11		2,800	2,800
	21		CP7	2,800		—

4. A single monthly total of the Accounts Payable Dr. column is posted to the accounts payable general ledger account. This is the total cash paid on account and is posted as a debit to Accounts Payable. The accounts payable account number (21) is then inserted below the Accounts Payable Dr. column to indicate that the posting is complete. *To illustrate, Exhibit 6 shows the monthly total of $5,050 was posted as a debit to Accounts Payable (21).*

5. A single monthly total of the Cash Cr. column is posted to the cash general ledger account. This is the total cash payments during the month and is posted as a credit to Cash. The cash account number (11) is then inserted below the Cash Cr. column to indicate that the posting is complete.
   To illustrate, Exhibit 6 shows the monthly total of $7,700 was posted as a credit to Cash (11).
6. The accounts listed in the Other Accounts Dr. column are posted on a regular basis as a separate debit to each account. The account number is then inserted in the Post. Ref. column to indicate that the posting is complete. Because accounts in the Other Accounts Dr. column are posted individually, a check mark is placed below the column total at the end of the month to show that no further action is needed.
   To illustrate, Exhibit 6 shows that $1,600 was posted as a debit to Rent Expense (52) and $1,050 was posted as a debit to Utilities Expense (54) in the general ledger. The account numbers (52 and 54, respectively) were entered in the Post. Ref. column of the cash payments journal. Also, at the end of the month, a check mark (✓) is entered below the Other Accounts Dr. column to indicate that no further action is needed.

Accounts Payable Control Account and Subsidiary Ledger

After all posting has been completed for the month, the balances in the accounts payable subsidiary ledger should be totaled. This total should then be compared with the balance of the accounts payable controlling account in the general ledger. If the controlling account and the subsidiary ledger do not agree, an error has occurred. Before proceeding, the error must be located and corrected.

The total of NetSolutions' accounts payable subsidiary ledger is $2,410. This total agrees with the balance of its accounts payable control account on March 31, 2012, as shown below.

Accounts Payable
(Control)

Balance, March 1, 2012	$1,230
Total credits (from purchases journal)	6,230
Total debits (from cash payments journal)	(5,050)
Balance, March 31, 2012	$2,410

NetSolutions
Accounts Payable Creditor Balances
March 31, 2012

Donnelly Supplies	$1,450
Grayco Supplies	0
Howard Supplies	960
Jewett Business Systems	0
Total	$2,410

Equal credit balances

Example Exercise 5-4 Accounts Payable Subsidiary Ledger

OBJ 2

The debits and credits from two transactions are presented in the following creditor's (supplier's) account:

NAME *Lassiter Services Inc.*
ADDRESS *301 St. Bonaventure Ave.*

Date	Item	Post. Ref.	Debit	Credit	Balance
Aug. 1	Balance				320
12	Invoice No. 101	CP36	200		120
22	Invoice No. 106	P16		140	260

Describe each transaction and the source of each posting.

Follow My Example 5-4

Aug. 12. Paid $200 to Lassiter Services Inc. on account (Invoice No. 101). Amount posted from page 36 of the cash payments journal.
22. Purchased $140 of services on account from Lassiter Services Inc. itemized on Invoice No. 106. Amount posted from page 16 of the purchases journal.

Practice Exercises: **PE 5-4A, PE 5-4B**

OBJ. 3 Define and illustrate the use of a computerized accounting system.

Computerized Accounting Systems

Computerized accounting systems are widely used by even the smallest of companies. Computerized accounting systems have the following three main advantages over manual systems:

1. Computerized systems simplify the record-keeping process by recording transactions in electronic forms and, at the same time, posting them electronically to general and subsidiary ledger accounts.
2. Computerized systems are generally more accurate than manual systems.
3. Computerized systems provide management with current account balance information to support decision making, since account balances are posted as the transactions occur.

The popular QuickBooks accounting software for small- to medium-sized businesses is used to illustrate a computerized accounting system for **NetSolutions**. To simplify, the illustration is limited to transactions involving revenue earned on account and the subsequent recording of cash collections. Exhibit 7 illustrates the use of QuickBooks for NetSolutions to record transactions as follows:

Business Connection

ACCOUNTING SYSTEMS AND PROFIT MEASUREMENT

A Greek restaurant owner in Canada had his own system of accounting. He kept his accounts payable in a cigar box on the left-hand side of his cash register, his daily cash returns in the cash register, and his receipts for paid bills in another cigar box on the right. A truly "manual" system.

When his youngest son graduated as an accountant, he was appalled by his father's primitive methods. "I don't know how you can run a business that way," he said. "How do you know what your profits are?"

"Well, son," the father replied, "when I got off the boat from Greece, I had nothing but the pants I was wearing. Today, your brother is a doctor. You are an accountant. Your sister is a speech therapist. Your mother and I have a nice car, a city house, and a country home. We have a good business, and everything is paid for. . . ."

"So, you add all that together, subtract the pants, and there's your profit!"

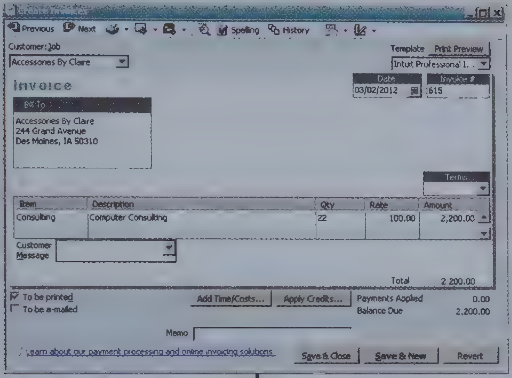
Large companies have their accounting systems integrated within the automated business systems of the firm. Such integrated software is termed ERP, or enterprise resource planning.

Step 1. Record fees by completing an electronic invoice form.
Sales transactions are entered onto the computer screen using an electronic invoice form. The electronic form appears like a paper form with spaces, or fields, to input transaction data. The data spaces may have pull-down lists to ease data entry. After the form is completed, it is printed out and mailed, or e-mailed, to the customer.
To illustrate, on March 2, NetSolutions earned $2,200 on account from Accessories By Claire. As shown in Exhibit 7, Invoice No. 615 was created using an electronic form. Upon submitting the invoice form, QuickBooks automatically posts a $2,200 debit to the Accessories By Claire customer account and a credit to Fees Earned. An invoice is either e-mailed or printed for mailing to Accessories By Claire.

Step 2. Record collection of payment by completing a "receive payment" form.
Upon collection from the customer, a "receive payment" electronic form is opened and completed. As with the "invoice form," data are input into the various spaces directly or by using pull-down lists.
To illustrate, a $2,200 payment was collected from Accessories By Claire on March 28. As shown in Exhibit 7, the $2,200 was applied to Invoice No. 615, as shown by the check mark (✓) next to the March 2 date at the bottom of the form. As shown at the bottom of the form, the March 27 invoice of $3,000 remains uncollected. When the screen is completed, a debit of $2,200 is automatically posted to the cash account, and a credit for $2,200 is posted to the Accessories By Claire account. This causes the balance of the Accessories By Claire account to be reduced from $5,200 to $3,000.

EXHIBIT 7 Revenue and Cash Receipts in QuickBooks

1. Record fees by completing an electronic invoice form.



Customer:Job: Accessories By Claire

Template: Intuit Professional I...

Invoice

Date: 03/02/2012

Invoice #: 615

Bill To:
Accessories By Claire
244 Grand Avenue
Des Moines, IA 50310

Terms:

Item	Description	Qty	Rate	Amount
Consulting	Computer Consulting	22	100.00	2,200.00

Customer Message:

Total 2,200.00

☑ To be printed
☐ To be e-mailed

Payments Applied 0.00
Balance Due 2,200.00

Memo

Journal Entry Equivalent

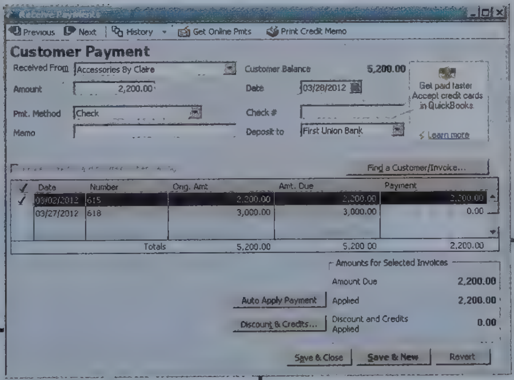
	Dr.	Cr.
Accounts Receivable—		
Accessories By Claire . . .	2,200	
Fees Earned		2,200

Send invoice to customer.

Accessories By Claire
244 Grand Ave.
Des Moines, IA 50310

Receive payment.

2. Record collection of payment by completing a "receive payment" form.



Customer Payment

Received From: Accessories By Claire

Customer Balance 5,200.00

Amount: 2,200.00

Date: 03/28/2012

Pmt. Method: Check

Check #:

Memo:

Deposit to: First Union Bank

✓	Date	Number	Orig. Amt	Amt. Due	Payment
✓	03/02/2012	615	2,200.00	2,200.00	2,200.00
	03/27/2012	618	3,000.00	3,000.00	0.00
		Totals	5,200.00	5,200.00	2,200.00

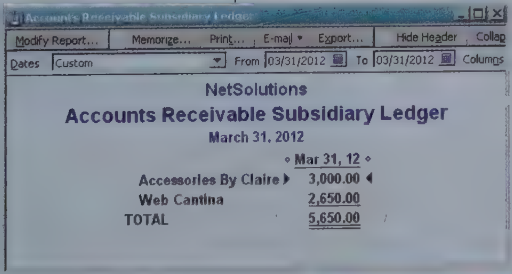
Amounts for Selected Invoices

Amount Due 2,200.00
Applied 2,200.00
Discount and Credits Applied 0.00

Journal Entry Equivalent

	Dr.	Cr.
Cash	2,200	
Accounts Receivable—		
Accessories By Claire . .		2,200

3. Prepare reports.



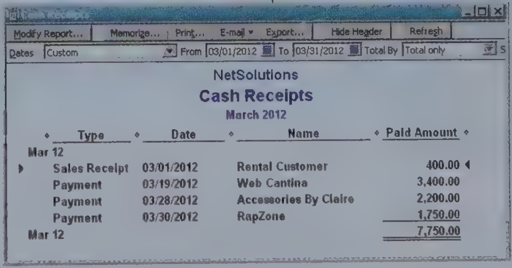
Dates: Custom From 03/31/2012 To 03/31/2012

NetSolutions

Accounts Receivable Subsidiary Ledger

March 31, 2012

	Mar 31, 12
Accessories By Claire	3,000.00
Web Cantina	2,650.00
TOTAL	5,650.00



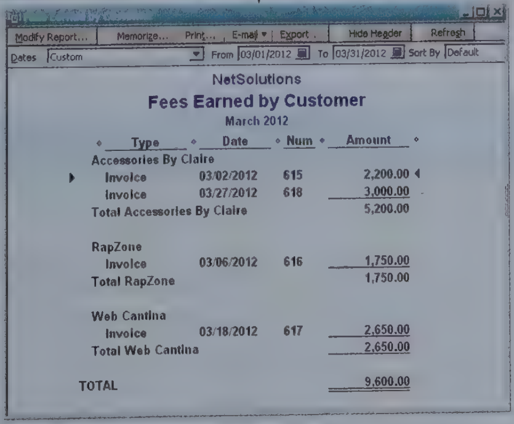
Dates: Custom From 03/01/2012 To 03/31/2012 Total By: Total only

NetSolutions

Cash Receipts

March 2012

Type	Date	Name	Paid Amount
Mar 12			
Sales Receipt	03/01/2012	Rental Customer	400.00
Payment	03/19/2012	Web Cantina	3,400.00
Payment	03/28/2012	Accessories By Claire	2,200.00
Payment	03/30/2012	RapZone	1,750.00
Mar 12			7,750.00



Dates: Custom From 03/01/2012 To 03/31/2012 Sort By: Default

NetSolutions

Fees Earned by Customer

March 2012

Type	Date	Num	Amount
Accessories By Claire			
Invoice	03/02/2012	615	2,200.00
Invoice	03/27/2012	618	3,000.00
Total Accessories By Claire			5,200.00
RapZone			
Invoice	03/06/2012	616	1,750.00
Total RapZone			1,750.00
Web Cantina			
Invoice	03/18/2012	617	2,650.00
Total Web Cantina			2,650.00
TOTAL			9,600.00

Step 3. Prepare reports.
At any time, managers may request reports from the software. Three such reports include the following:

1. "Accounts Receivable Subsidiary Ledger" lists as of a specific date the accounts receivable balances by customer.
   To illustrate, the Accounts Receivable Subsidiary Ledger report shown in Exhibit 7 for NetSolutions was generated as of March 31, 2012. The total of the balances of the Accounts Receivable Subsidiary Ledger report of $5,650 agrees with the accounts receivable subsidiary balance total we illustrated using a manual system for NetSolutions on page 220.
2. "Fees Earned by Customer" lists revenue by customer for the month. It is created from the electronic invoice form used in step 1.
   To illustrate, the Fees Earned by Customer report shown in Exhibit 7 for NetSolutions is for the month of March 2012. The total fees earned by customer of $9,600 agree with the total of the revenue journal we illustrated using a manual system for NetSolutions in Exhibits 2 and 3.
3. *"Cash Receipts"* lists the cash receipts during the month.
   To illustrate, the Cash Receipts report shown in Exhibit 7 for NetSolutions is for the month of March 2012. The total cash receipts of $7,750 agree with the total of the Cash Dr. column of the cash receipts journal we illustrated using a manual system for NetSolutions in Exhibit 4.

The computer does not allow certain journalizing errors. For example, a computerized accounting system will not process a transaction unless the total debits for the transaction equal the total credits for a transaction. Instead, an error screen will notify the user that the transaction data must be corrected. Likewise, the computer will not make posting or mathematical errors.

BusinessConnection

TURBOTAX

Intuit sells TurboTax®, one of the most popular tax preparation software products for individuals. Using this product, the tax return is prepared using electronic tax forms. Thus, the familiar Form 1040 is presented as an electronic form with data-entry fields provided for the various line items. The advantage of this approach is that all the arithmetic and linking between forms is done automatically. A change in one field automatically updates all other linked fields. Thus, no more erasure.

In this section, revenue and cash receipt transactions are illustrated for NetSolutions using QuickBooks accounting software. Similar illustrations could be provided for purchases and cash payment transactions. A complete illustration of a computerized accounting system is beyond the scope of this text. However, this chapter provides a solid foundation for applying accounting system concepts in either a manual or a computerized system.

Integrity, Objectivity, and Ethics in Business

ONLINE FRAUD

Fraud accounted for over $3.3 billion in e-commerce losses in 2009, or approximately 1.2% of all online revenue. As a result, online retailers are using address verification and credit card security codes as additional security measures. Address verification matches the customer's address to the address on file with the credit card company, while the security code is the additional four-digit code designed to reduce fictitious credit card transactions.

Source: 11th Annual CyberSource fraud survey, *CyberSource*, November 19, 2009.

E-Commerce

OBJ. 4 Describe the basic features of e-commerce.

The U.S. Census Bureau indicates that e-commerce sales are over $130 billion in retail sales. This represents over 3% of all retail sales.[1] Using the Internet to perform business transactions is termed **e-commerce.** When transactions are between a company and a consumer, it is termed B2C (business-to-consumer) e-commerce. Examples of companies engaged in B2C e-commerce include Amazon.com, priceline.com Incorporated, and Dell Inc.

The B2C business allows consumers to shop and receive goods at home, rather than going to the store. For example, Whirlpool Corporation allows consumers to use its Web site to order appliances, selecting color and other features. After paying with a credit card, customers can receive delivery of the appliance from the Whirlpool factory.

When transactions are conducted between two companies, it is termed B2B (business-to-business) e-commerce. Examples of companies engaged in B2B e-commerce include Cisco Systems, Inc., an Internet equipment manufacturer, and Bristol-Myers Squibb Company (BMS), a pharmaceutical company. BMS, for example, uses e-commerce to purchase supplies and equipment from its suppliers. E-commerce streamlines purchases and payments by automating transactions and eliminating paperwork. BMS claims over $90 million in savings by placing its purchase/payment cycle on the Internet.

A new trend is toward application service provider (ASP) software solutions whereby the accounting system is managed and distributed over the Internet by a third party. Under this model, the software is "rented," while analysis, design, and implementation are largely provided by the ASP vendor.

The Internet creates opportunities for improving the speed and efficiency of transactions. Many companies are realizing these benefits of using e-commerce as illustrated above. Three additional areas where the Internet is being used for business purposes are as follows:

1. **Supply chain management (SCM):** Internet applications to plan and coordinate suppliers.
2. **Customer relationship management (CRM):** Internet applications to plan and coordinate marketing and sales effort.
3. **Product life-cycle management (PLM):** Internet applications to plan and coordinate the product development and design process.

E-commerce also provides opportunities for faster business processes that operate at lower costs. New Internet applications are continually being introduced as the Internet develops into a preferred method of conducting business.

Financial Analysis and Interpretation: Segment Analysis

F·A·I

OBJ. 5 Use segment analysis in evaluating the operating performance of a company.

Accounting systems often use computers to collect, classify, summarize, and report financial and operating information in a variety of ways. One way is to report revenue earned by different segments of business. Businesses may be segmented by region, by product or service, or by type of customer. Segment revenues are determined from the invoice data that are entered into the accounting system.

For example, Intuit Inc. uses invoice data from the accounting system to determine the amount of revenue earned by different products and services. Segment analysis uses horizontal and vertical comparisons to analyze the contributions of various segments to the total operating performance of a company. To illustrate, selected product and service segment revenue information from the notes to Intuit's financial statements for the fiscal years ending July 31, 2009 and 2008, is presented on the following page.

---

[1] Estimated Quarterly U.S. Retail Sales: Total and E-commerce, U.S. Census Bureau, November 18, 2009.

Segment	2009 (in thousands)	2008 (in thousands)
Financial Management Solutions	$ 578,801	$ 592,106
Employee Management Solutions	364,831	336,880
Payments Solutions	290,974	253,560
Consumer Tax	996,413	929,429
Accounting Professionals	351,747	326,723
Financial Institutions	311,105	298,540
Other Businesses	288,666	333,736
Total revenues	$3,182,537	$3,070,974

This segment information can be used to perform horizontal analysis using 2008 as the base year as follows:

Segment	2009 (in thousands)	2008 (in thousands)	Increase (Decrease) Amount	Increase (Decrease) Percent
Financial Management Solutions	$ 578,801	$ 592,106	$ (13,305)	(2.2)%
Employee Management Solutions	364,831	336,880	27,951	8.3
Payments Solutions	290,974	253,560	37,414	14.8
Consumer Tax	996,413	929,429	66,984	7.2
Accounting Professionals	351,747	326,723	25,024	7.7
Financial Institutions	311,105	298,540	12,565	4.2
Other Businesses	288,666	333,736	(45,070)	(13.5)
Total revenues	$3,182,537	$3,070,974	$111,563	3.6

Intuit Inc. increased total revenue by 3.6% from 2008 to 2009. This increase came from strong revenue gains in the Employee Management Solutions, Payments Solutions, Consumer Tax, and Accounting Professionals segments combined with revenue losses in the Financial Management Solutions and Other Businesses segments. The Payments Solutions segment had the largest revenue increase from 2008 to 2009, at 14.8%.

In addition, vertical analysis could be performed on the segment disclosures as follows:

	2009		2008	
Segment	Amount (in thousands)	Percent	Amount (in thousands)	Percent
Financial Management Solutions	$ 578,801	18.2%	$ 592,106	19.3%
Employee Management Solutions	364,831	11.5	336,880	11.0
Payments Solutions	290,974	9.1	253,560	8.3
Consumer Tax	996,413	31.3	929,429	30.3
Accounting Professionals	351,747	11.1	326,723	10.6
Financial Institutions	311,105	9.8	298,540	9.7
Other Businesses	288,666	9.1	333,736	10.9
Total revenues	$3,182,537	100.0%*	$3,070,974	100.0%*

*Percentages do not add exactly to 100% due to rounding.

The preceding analysis shows that revenue in the Financial Management Solutions and Other Businesses segments declined as a percent of total revenues from 2008 to 2009. The remaining segments all increased as a percent of total revenues from 2008 to 2009.

Both analyses indicate that Intuit's second largest business segment, the Financial Management Solutions segment, is declining. This segment consists of Quicken and Quickbooks products. However, the remaining segments are more than compensating for the revenue decline. For example, Intuit's largest segment, Consumer Tax, is still growing with such products as TurboTax.

Example Exercise 5-5 Segment Analysis

OBJ. 5

Morse Company does business in two regional segments: East and West. The following annual revenue information was determined from the accounting system's invoice information:

Segment	2012	2011
East	$25,000	$20,000
West	50,000	60,000
Total revenues	$75,000	$80,000

Prepare horizontal and vertical analyses of the segments.

Follow My Example 5-5

Horizontal analysis:

			Increase (Decrease)	
Segment	**2012**	**2011**	**Amount**	**Percent**
East	$25,000	$20,000	$ 5,000	25.0%
West	50,000	60,000	(10,000)	(16.7)
Total revenues	$75,000	$80,000	$ (5,000)	(6.3)

Vertical analysis:

	2012		2011	
Segment	**Amount**	**Percent**	**Amount**	**Percent**
East	$25,000	33.3%	$20,000	25.0%
West	50,000	66.7	60,000	75.0
Total revenues	$75,000	100.0%	$80,000	100.0%

Practice Exercises: PE 5-5A, PE 5-5B

At a Glance 5

OBJ. 1

Define and describe an accounting system.

Key Points An accounting system is the methods and procedures for collecting, classifying, summarizing, and reporting a business's financial information. The three steps through which an accounting system evolves are: (1) analysis of information needs, (2) design of the system, and (3) implementation of the system design.

Learning Outcomes	Example Exercises	Practice Exercises
• Define an accounting system. • Describe the three steps for designing an accounting system: (1) analysis, (2) design, and (3) implementation.		

OBJ. 2

Journalize and post transactions in a manual accounting system that uses subsidiary ledgers and special journals.

Key Points Subsidiary ledgers may be used to maintain separate records for customers and creditors (vendors). A controlling account in the general ledger summarizes the subsidiary ledger accounts. The sum of the subsidiary ledger account balances must agree with the balance in the related controlling account.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare a revenue journal and post services provided on account to individual customer accounts and the column total to the corresponding general ledger accounts.	EE5-1	PE5-1A, 5-1B
• Prepare a cash receipts journal and post collections on account to individual customer accounts. Post Other Accounts column entries individually and special column totals to the corresponding general ledger accounts.	EE5-2	PE5-2A, 5-2B
• Prepare a purchases journal and post amounts owed to individual creditor accounts. Post Other Accounts column entries individually and special column totals to the corresponding general ledger accounts.	EE5-3	PE5-3A, 5-3B
• Prepare a cash payments journal and post the amounts paid to individual creditor accounts. Post Other Accounts column entries individually and special column totals to the corresponding general ledger accounts.	EE5-4	PE5-4A, 5-4B

OBJ. 3

Describe and illustrate the use of a computerized accounting system.

Key Points Computerized accounting systems are similar to manual systems. The main advantages of a computerized accounting system are the simultaneous recording and posting of transactions, high degree of accuracy, and timeliness of reporting.

Learning Outcomes	Example Exercises	Practice Exercises
• Differentiate between a manual and a computerized accounting system.		
• Illustrate revenue and cash receipts transactions using QuickBooks.		

OBJ. 4

Describe the basic features of e-commerce.

Key Points Using the Internet to perform business transactions is termed e-commerce. B2C e-commerce involves Internet transactions between a business and consumer, while B2B e-commerce involves Internet transactions between businesses. More elaborate e-commerce involves planning and coordinating suppliers, customers, and product design.

Learning Outcomes	Example Exercises	Practice Exercises
• Define e-commerce and describe the major trends in e-commerce.		

OBJ. 5 Use segment analysis in evaluating the operating performance of a company.

Key Points Businesses may be segmented by region, by product or service, or by type of customer. Segment revenues can be analyzed using horizontal and vertical analyses. Such analyses are useful to management for evaluating the causes of business performance.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Prepare horizontal and vertical analyses for business segments.	EE5-5	PE5-5A, 5-5B

Key Terms

accounting system (212)
accounts payable subsidiary ledger (213)
accounts receivable subsidiary ledger (213)
cash payments journal (223)
cash receipts journal (218)
controlling account (213)
e-commerce (229)
general journal (214)
general ledger (213)
internal controls (213)
invoice (215)
purchases journal (220)
revenue journal (215)
special journals (213)
subsidiary ledger (213)

Illustrative Problem

Selected transactions of O'Malley Co. for the month of May are as follows:

a. May 1. Issued Check No. 1001 in payment of rent for May, $1,200.
b. 2. Purchased office supplies on account from McMillan Co., $3,600.
c. 4. Issued Check No. 1003 in payment of freight charges on the supplies purchased on May 2, $320.
d. 8. Provided services on account to Waller Co., Invoice No. 51, $4,500.
e. 9. Issued Check No. 1005 for office supplies purchased, $450.
f. 10. Received cash for office supplies sold to employees at cost, $120.
g. 11. Purchased office equipment on account from Fender Office Products, $15,000.
h. 12. Issued Check No. 1010 in payment of the supplies purchased from McMillan Co. on May 2, $3,600.
i. 16. Provided services on account to Riese Co., Invoice No. 58, $8,000.
j. 18. Received $4,500 from Waller Co. in payment of May 8 invoice.
k. 20. Invested additional cash in the business, $10,000.
l. 25. Provided services for cash, $15,900.
m. 30. Issued Check No. 1040 for withdrawal of cash for personal use, $1,000.
n. 30. Issued Check No. 1041 in payment of electricity and water invoices, $690.

o. May 30. Issued Check No. 1042 in payment of office and sales salaries for May, $15,800.

p. 31. Journalized adjusting entries from the work sheet prepared for the fiscal year ended May 31.

O'Malley Co. maintains a revenue journal, a cash receipts journal, a purchases journal, a cash payments journal, and a general journal. In addition, accounts receivable and accounts payable subsidiary ledgers are used.

Instructions

1. Indicate the journal in which each of the preceding transactions, (a) through (p), would be recorded.
2. Indicate whether an account in the accounts receivable or accounts payable subsidiary ledgers would be affected for each of the preceding transactions.
3. Journalize transactions (b), (c), (d), (h), and (j) in the appropriate journals.

Solution

	1. Journal	2. Subsidiary Ledger
a.	Cash payments journal	
b.	Purchases journal	Accounts payable ledger
c.	Cash payments journal	
d.	Revenue journal	Accounts receivable ledger
e.	Cash payments journal	
f.	Cash receipts journal	
g.	Purchases journal	Accounts payable ledger
h.	Cash payments journal	Accounts payable ledger
i.	Revenue journal	Accounts receivable ledger
j.	Cash receipts journal	Accounts receivable ledger
k.	Cash receipts journal	
l.	Cash receipts journal	
m.	Cash payments journal	
n.	Cash payments journal	
o.	Cash payments journal	
p.	General journal	

3.

Transaction (b):

Purchases Journal

Date		Account Credited	Post. Ref.	Accounts Payable Cr.	Office Supplies Dr.	Other Accounts Dr.	Post. Ref.	Amount
May	2	McMillan Co.		3,600	3,600			

Transactions (c) and (h):

Cash Payments Journal

Date		Ck. No.	Account Debited	Post. Ref.	Other Accounts Dr.	Accounts Payable Dr.	Cash Cr.
May	4	1003	Freight Expense		320		320
	12	1010	McMillan Co.			3,600	3,600

Transaction (d):

Revenue Journal

Date		Invoice No.	Account Debited	Post. Ref.	Accts. Rec. Dr. Fees Earned Cr.
May	8	51	Waller Co.		4,500

Transaction (j):

Cash Receipts Journal

Date		Account Credited	Post. Ref.	Other Accounts Cr.	Accounts Receivable Cr.	Cash Dr.
May	18	Waller Co.			4,500	4,500

Discussion Questions

1. Why would a company maintain separate accounts receivable ledgers for each customer, as opposed to maintaining a single accounts receivable ledger for all customers?
2. What are the major advantages of the use of special journals?
3. In recording 400 fees earned on account during a single month, how many times will it be necessary to write Fees Earned (a) if each transaction, including fees earned, is recorded individually in a two-column general journal; (b) if each transaction for fees earned is recorded in a revenue journal?
4. How many postings to Fees Earned for the month would be needed in Discussion Question 3 if the procedure described in (a) had been used; if the procedure described in (b) had been used?
5. During the current month, the following errors occurred in recording transactions in the purchases journal or in posting from it.
   a. An invoice for $1,875 of supplies from Kelly Co. was recorded as having been received from Kelley Co., another supplier.
   b. A credit of $420 to Blackstone Company was posted as $240 in the subsidiary ledger.
   c. An invoice for equipment of $4,800 was recorded as $4,000.
   d. The Accounts Payable column of the purchases journal was overstated by $3,600.

   How will each error come to the bookkeeper's attention, other than by chance discovery?
6. Assuming the use of a two-column general journal, a purchases journal, and a cash payments journal as illustrated in this chapter, indicate the journal in which each of the following transactions should be recorded:
   a. Purchase of office supplies on account.
   b. Purchase of supplies for cash.
   c. Purchase of store equipment on account.
   d. Payment of cash on account to creditor.
   e. Payment of cash for office supplies.
7. What is an electronic form, and how is it used in a computerized accounting system?
8. Do computerized systems use controlling accounts to verify the accuracy of the subsidiary accounts?
9. What happens to the special journal in a computerized accounting system that uses electronic forms?
10. How would e-commerce improve the revenue/collection cycle?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 2 **EE 5-1** *p. 217*

PE 5-1A Revenue journal

The following revenue transactions occurred during October:

Oct. 7. Issued Invoice No. 121 to Darcy Co. for services provided on account, $320.
17. Issued Invoice No. 122 to Triple A Inc. for services provided on account, $470.
21. Issued Invoice No. 123 to Whaley Co. for services provided on account, $530.

Record these three transactions into the following revenue journal format:

REVENUE JOURNAL

Date	Invoice No.	Account Debited	Post. Ref.	Accts. Rec. Dr. Fees Earned Cr.

OBJ. 2 **EE 5-1** *p. 217*

PE 5-1B Revenue journal

The following revenue transactions occurred during May:

May 6. Issued Invoice No. 78 to Lemon Co. for services provided on account, $1,240.
9. Issued Invoice No. 79 to Hitchcock Inc. for services provided on account, $3,420.
19. Issued Invoice No. 80 to Conrad Inc. for services provided on account, $1,470.

Record these three transactions into the following revenue journal format:

REVENUE JOURNAL

Date	Invoice No.	Account Debited	Post. Ref.	Accts. Rec. Dr. Fees Earned Cr.

OBJ. 2 **EE 5-2** *p. 220*

PE 5-2A Accounts receivable subsidiary ledger

The debits and credits from two transactions are presented in the following customer account:

NAME *Signal Communications Inc.*
ADDRESS *76 Oak Ridge Rd.*

Date	Item	Post. Ref.	Debit	Credit	Balance
June 1	Balance	✓			280
20	Invoice 579	CR106		95	185
28	Invoice 527	R92	75		260

Describe each transaction and the source of each posting.

OBJ. 2 **EE 5-2** *p. 220*

PE 5-2B Accounts receivable subsidiary ledger

The debits and credits from two transactions are presented in the following customer account:

NAME *Mobility Products Inc.*
ADDRESS *46 W. Main St.*

Date	Item	Post. Ref.	Debit	Credit	Balance
Sept. 1	Balance	✓			1,200
8	Invoice 119	R24	840		2,040
17	Invoice 106	CR46		590	1,450

Describe each transaction and the source of each posting.

Learning Objectives *Example Exercises*

OBJ. 2 **EE 5-3** *p. 222*

PE 5-3A Purchases journal

The following purchase transactions occurred during August for Elegance Catering Service:

Aug. 11. Purchased party supplies for $390, on account from Party Zone Supplies Inc.
14. Purchased party supplies for $290, on account from Fun 4 All Supplies Inc.
29. Purchased office furniture for $3,560, on account from Office Space Inc.

Record these transactions in the following purchases journal format:

PURCHASES JOURNAL

Date	Accounts Credited	Post. Ref.	Accounts Payable Cr.	Office Supplies Dr.	Other Account Dr.	Post. Ref.	Amount

OBJ. 2 **EE 5-3** *p. 222*

PE 5-3B Purchases journal

The following purchase transactions occurred during December for Rehoboth Inc.:

Dec. 6. Purchased office supplies for $415, on account from Supply Hut Inc.
14. Purchased office equipment for $1,950, on account from Zell Computer Inc.
19. Purchased office supplies for $450, on account from Supply Hut Inc.

Record these transactions in the following purchases journal format:

PURCHASES JOURNAL

Date	Accounts Credited	Post. Ref.	Accounts Payable Cr.	Office Supplies Dr.	Other Account Dr.	Post. Ref.	Amount

OBJ. 2 **EE 5-4** *p. 225*

PE 5-4A Accounts payable subsidiary ledger

The debits and credits from two transactions are presented in the following supplier's (creditor's) account:

NAME *Newton Computer Services Inc.*
ADDRESS *2199 Technology Place*

Date	Item	Post. Ref.	Debit	Credit	Balance
Nov. 1	Balance				9,400
11	Invoice 75	P8		2,790	12,190
21	Invoice 43	CP46	6,550		5,640

Describe each transaction and the source of each posting.

OBJ. 2 **EE 5-4** *p. 225*

PE 5-4B Accounts payable subsidiary ledger

The debits and credits from two transactions are presented in the following supplier's (creditor's) account:

NAME *Daisy Inc.*
ADDRESS *5000 Grand Ave.*

Date	Item	Post. Ref.	Debit	Credit	Balance
Feb. 1	Balance				92
11	Invoice 122	CP71	79		13
20	Invoice 139	P55		57	70

Describe each transaction and the source of each posting.

OBJ. 5 **EE 5-5** *p. 231*

FAI

PE 5-5A Segment analysis

Harrow Company does business in two customer segments, Retail and Wholesale. The following annual revenue information was determined from the accounting system's invoice information:

	2012	2011
Retail	$ 80,000	$ 75,000
Wholesale	120,000	140,000
Total revenue	$200,000	$215,000

Prepare a horizontal and vertical analysis of the segments. Round to one decimal place.

OBJ. 5 **EE 5-5** *p. 231*

FAI

PE 5-5B Segment analysis

Outdoor Country, Inc. does business in two product segments, Camping and Fishing. The following annual revenue information was determined from the accounting system's invoice information:

	2012	2011
Camping	$250,000	$280,000
Fishing	100,000	60,000
Total revenue	$350,000	$340,000

Prepare a horizontal and vertical analysis of the segments. Round to one decimal place.

Exercises

OBJ. 2

EX 5-1 Identify postings from revenue journal

Using the following revenue journal for Gamma Services Inc., identify each of the posting references, indicated by a letter, as representing (1) posting to general ledger accounts or (2) posting to subsidiary ledger accounts.

REVENUE JOURNAL

Date	Invoice No.	Account Debited	Post. Ref.	Accounts Rec. Dr. Fees Earned Cr.
2012				
June 1	112	Hazmat Safety Co.	(a)	$2,625
10	113	Masco Co.	(b)	980
18	114	Eco-Systems	(c)	1,600
27	115	Nero Enterprises	(d)	1,240
30				$6,445
				(e)

OBJ. 2

✔ d. Total accounts receivable, $6,975

EX 5-2 Accounts receivable ledger

Based on the data presented in Exercise 5-1, assume that the beginning balances for the customer accounts were zero, except for Nero Enterprises, which had a $530 beginning balance. In addition, there were no collections during the period.

a. Set up a T account for Accounts Receivable and T accounts for the four accounts needed in the customer ledger.

b. Post to the T accounts.

c. Determine the balance in the accounts.

d. Prepare a listing of the accounts receivable subsidiary ledger account balances as of June 30, 2012.

OBJ. 2

EX 5-3 Identify journals

Assuming the use of a two-column (all-purpose) general journal, a revenue journal, and a cash receipts journal as illustrated in this chapter, indicate the journal in which each of the following transactions should be recorded:

a. Sale of office supplies on account, at cost, to a neighboring business.

b. Receipt of cash from sale of office equipment.

c. Closing of drawing account at the end of the year.
d. Providing services for cash.
e. Receipt of cash refund from overpayment of taxes.
f. Adjustment to record accrued salaries at the end of the year.
g. Receipt of cash for rent.
h. Receipt of cash on account from a customer.
i. Providing services on account.
j. Investment of additional cash in the business by the owner.

OBJ. 2

EX 5-4 Identify journals

Assuming the use of a two-column (all-purpose) general journal, a purchases journal, and a cash payments journal as illustrated in this chapter, indicate the journal in which each of the following transactions should be recorded:

a. Purchase of an office computer on account.
b. Purchase of services on account.
c. Purchase of office supplies on account.
d. Adjustment to prepaid rent at the end of the month.
e. Adjustment to record accrued salaries at the end of the period.
f. Purchase of office supplies for cash.
g. Advance payment of a one-year fire insurance policy on the office.
h. Purchase of office equipment for cash.
i. Adjustment to prepaid insurance at the end of the month.
j. Adjustment to record depreciation at the end of the month.
k. Payment of six months' rent in advance.

OBJ. 2

EX 5-5 Identify transactions in accounts receivable ledger

The debits and credits from three related transactions are presented in the following customer's account taken from the accounts receivable subsidiary ledger.

NAME *Casey By Design*
ADDRESS *1319 Elm Street*

Date	Item	Post. Ref.	Debit	Credit	Balance
2012					
Feb. 3		R44	740		740
6		J11		80	660
16		CR81		660	—

Describe each transaction, and identify the source of each posting.

OBJ. 2

EX 5-6 Prepare journal entries in a revenue journal

Madison Services Company had the following transactions during the month of April:

Apr. 2. Issued Invoice No. 201 to Triple Play Corp. for services rendered on account, $345.
3. Issued Invoice No. 202 to Mid States Inc. for services rendered on account, $410.
14. Issued Invoice No. 203 to Triple Play Corp. for services rendered on account, $110.
25. Issued Invoice No. 204 to Parker Co. for services rendered on account, $830.
28. Collected Invoice No. 201 from Triple Play Corp.

a. Prepare a revenue journal with the following headings to record the April revenue transactions for Madison Services Company.

(Continued)

REVENUE JOURNAL

Date	Invoice No.	Account Debited	Post. Ref.	Accts. Rec. Dr. Fees Earned Cr.

b. What is the total amount posted to the accounts receivable and fees earned accounts from the revenue journal for April?

c. What is the April 30 balance of the Triple Play Corp. customer account assuming a zero balance on April 1?

OBJ. 2, 3

EX 5-7 Posting a revenue journal

The revenue journal for Tech-Aid Consulting Inc. is shown below. The accounts receivable control account has a July 1, 2012, balance of $805 consisting of an amount due from Astro Star Co. There were no collections during July.

REVENUE JOURNAL Page *12*

Date	Invoice No.	Account Debited	Post. Ref.	Accts. Rec. Dr. Fees Earned Cr.
2012				
July 4	355	Borman Co.		1,960
9	356	Life Star Inc.		3,220
14	357	Astro Star Co.		1,490
22	359	Borman Co.		2,650
				9,320

a. Prepare a T account for the accounts receivable customer accounts.

b. Post the transactions from the revenue journal to the customer accounts, and determine their ending balances.

c. Prepare T accounts for the accounts receivable and fees earned accounts. Post control totals to the two accounts, and determine the ending balances.

d. Prepare a schedule of the customer account balances to verify the equality of the sum of the customer account balances and the accounts receivable account balance.

e. How might a computerized system differ from a revenue journal in recording revenue transactions?

OBJ. 2

✔ Accounts Receivable balance, May 31, $5,490

EX 5-8 Accounts receivable subsidiary ledger

The revenue and cash receipts journals for Amazon Productions Inc. are shown below. The accounts receivable control account has a May 1, 2012, balance of $3,910, consisting of an amount due from Bishop Studios Inc.

REVENUE JOURNAL Page *16*

Date	Invoice No.	Account Debited	Post. Ref.	Accts. Rec. Dr. Fees Earned Cr.
2012				
May 6	1	Chandler Broadcasting Co.	✓	1,250
14	2	Gold Coast Media Inc.	✓	5,700
22	3	Chandler Broadcasting Co.	✓	2,200
27	4	Bishop Studios Inc.	✓	1,250
28	5	Amber Communications Inc.	✓	2,040
30				12,440
				(12) (41)

CASH RECEIPTS JOURNAL Page *36*

Date	Account Credited	Post. Ref.	Fees Earned Cr.	Accts. Rec. Cr.	Cash Dr.
2012					
May 6	Bishop Studios Inc.	✓	—	3,910	3,910
11	Fees Earned		3,200		3,200
18	Chandler Broadcasting Co	✓	—	1,250	1,250
28	Gold Coast Media Inc.	✓	—	5,700	5,700
30			3,200	10,860	14,060
			(41)	(12)	(11)

Prepare a listing of the accounts receivable subsidiary ledger account balances and verify that the total agrees with the ending balance of the accounts receivable account.

OBJ. 2

EX 5-9 Revenue and cash receipts journals

Transactions related to revenue and cash receipts completed by Main Line Inc. during the month of August 2012 are as follows:

Aug. 2. Issued Invoice No. 512 to Boston Co., $780.
4. Received cash from CMI Inc., on account, for $195.
8. Issued Invoice No. 513 to Gabriel Co., $275.
12. Issued Invoice No. 514 to Dockers Inc., $690.
19. Received cash from Dockers Inc., on account, $525.
22. Issued Invoice No. 515 to Electronic Central Inc., $150.
27. Received cash from Marshall Inc. for services provided, $115.
29. Received cash from Boston Co. for invoice of August 2.
31. Received cash from McCleary Co. for services provided, $65.

Prepare a single-column revenue journal and a cash receipts journal to record these transactions. Use the following column headings for the cash receipts journal: Fees Earned Cr., Accounts Receivable Cr., and Cash Dr. Place a check mark (✓) in the Post. Ref. column to indicate when the accounts receivable subsidiary ledger should be posted.

OBJ. 2

✓ Revenue journal total, $10,160

EX 5-10 Revenue and cash receipts journals

Essential Paris, Inc. has $2,290 in the December 1 balance of the accounts receivable account consisting of $940 from Chrystal Co. and $1,350 from Venus Co. Transactions related to revenue and cash receipts completed by Essential Paris, Inc. during the month of December 2012 are as follows:

Dec. 3. Issued Invoice No. 622 for services provided to Palace Corp., $1,920.
5. Received cash from Chrystal Co., on account, for $940.
8. Issued Invoice No. 623 for services provided to Sunstream Aviation Inc., $3,450.
12. Received cash from Venus Co., on account, for $1,350.
18. Issued Invoice No. 624 for services provided to Amex Services Inc., $2,600.
23. Received cash from Palace Corp. for Invoice No. 622.
28. Issued Invoice No. 625 to Venus Co., on account, for $2,190.
30. Received cash from Rogers Co. for services provided, $80.

a. Prepare a single-column revenue journal and a cash receipts journal to record these transactions. Use the following column headings for the cash receipts journal: Fees Earned Cr., Accounts Receivable Cr., and Cash Dr. Place a check mark (✓) in the Post. Ref. column to indicate when the accounts receivable subsidiary ledger should be posted.

b. Prepare a listing of the accounts receivable subsidiary ledger account balances and verify that the total of the accounts receivable subsidiary ledger equals the balance of the accounts receivable account on December 31, 2012.

c. Why does Essential Paris use a subsidiary ledger for accounts receivable?

OBJ. 2

EX 5-11 Identify postings from purchases journal

Using the following purchases journal, identify each of the posting references, indicated by a letter, as representing (1) a posting to a general ledger account, (2) a posting to a subsidiary ledger account, or (3) that no posting is required.

PURCHASES JOURNAL — *Page 49*

Date	Account Credited	Post. Ref.	Accounts Payable Cr.	Store Supplies Dr.	Office Supplies Dr.	Other Accounts Dr.	Post. Ref.	Amount
2012								
Mar. 4	Arrow Supply Co.	(a)	4,000		4,000			
6	Coastal Equipment Co.	(b)	5,325			Warehouse Equipment	(c)	5,325
9	Thorton Products	(d)	1,875	1,600	275			
14	Office Warehouse	(e)	2,200			Office Equipment	(f)	2,200
20	Office Warehouse	(g)	6,000			Store Equipment	(h)	6,000
25	Monroe Supply Co.	(i)	2,740	2,740				
30			22,140	4,340	4,275			13,525
			(j)	(k)	(l)			(m)

OBJ. 2

EX 5-12 Identify postings from cash payments journal

Using the following cash payments journal, identify each of the posting references, indicated by a letter, as representing (1) a posting to a general ledger account, (2) a posting to a subsidiary ledger account, or (3) that no posting is required.

CASH PAYMENTS JOURNAL — *Page 46*

Date	Ck. No.	Account Debited	Post. Ref.	Other Accounts Dr.	Accounts Payable Dr.	Cash Cr.
2012						
Aug. 3	611	Energy Systems Co.	(a)		4,000	4,000
5	612	Utilities Expense	(b)	310		310
10	613	Prepaid Rent	(c)	3,200		3,200
16	614	Flowers to Go, Inc.	(d)		1,250	1,250
19	615	Advertising Expense	(e)	640		640
22	616	Office Equipment	(f)	3,600		3,600
25	617	Office Supplies	(g)	250		250
26	618	Echo Co.	(h)		5,500	5,500
31	619	Salaries Expense	(i)	1,750		1,750
31				9,750	10,750	20,500
				(j)	(k)	(l)

OBJ. 2

EX 5-13 Identify transactions in accounts payable ledger account

The debits and credits from three related transactions are presented in the following creditor's account taken from the accounts payable ledger.

NAME *Apex Performance Co.*
ADDRESS *101 W. Stratford Ave.*

Date	Item	Post. Ref.	Debit	Credit	Balance
2012					
Mar. 6		P44		12,000	12,000
11		J12	400		11,600
16		CP23	11,600		—

Describe each transaction, and identify the source of each posting.

OBJ. 2

EX 5-14 Prepare journal entries in a purchases journal

Sentry Security Company had the following transactions during the month of January:

Jan. 4. Purchased office supplies from Office Universe Inc. on account, $550.
9. Purchased office equipment on account from Tek Village, Inc., $2,300.
16. Purchased office supplies from Office Universe Inc. on account, $90.
21. Purchased office supplies from Paper-to-Go Inc. on account, $170.
27. Paid invoice on January 4 purchase from Office Universe Inc.

a. Prepare a purchases journal with the following headings to record the January purchase transactions for Sentry Security Company.

PURCHASES JOURNAL

Date	Account Credited	Post. Ref.	Accts. Payable Cr.	Office Supplies Dr.	Other Accounts Dr.	Post. Ref.	Amount

b. What is the total amount posted to the accounts payable and office supplies accounts from the purchases journal for January?

c. What is the January 31 balance of the Office Universe Inc. creditor account assuming a zero balance on January 1?

OBJ. 2, 3

✔ d. Total, $4,215

EX 5-15 Posting a purchases journal

The purchases journal for Crystal View Window Cleaners Inc. is shown below. The accounts payable account has a January 1, 2012, balance of $365 of an amount due from Little Co. There were no payments made on creditor invoices during January.

PURCHASES JOURNAL — Page 16

Date		Account Credited	Post. Ref.	Accts. Payable Cr.	Cleaning Supplies Dr.	Other Accounts Dr.	Post. Ref.	Amount
2012								
Jan.	4	Kleen-Mate Supplies Inc.		570	570			
	15	Little Co.		250	250			
	19	Office Mate Inc.		2,700		Office Equipment		2,700
	26	Kleen-Mate Supplies Inc.		330	330			
	31			3,850	1,150			2,700

a. Prepare a T account for the accounts payable creditor accounts.

b. Post the transactions from the purchases journal to the creditor accounts, and determine their ending balances.

c. Prepare T accounts for the accounts payable control and cleaning supplies accounts. Post control totals to the two accounts, and determine their ending balances.

d. Prepare a schedule of the creditor account balances to verify the equality of the sum of the creditor account balances and the accounts payable account balance.

e. How might a computerized accounting system differ from the use of a purchases journal in recording purchase transactions?

OBJ. 2

✔ Accts. Pay., June 30, $15,860

EX 5-16 Accounts payable subsidiary ledger

The cash payments and purchases journals for Out of Eden Landscaping Co. are shown below. The accounts payable control account has a June 1, 2012, balance of $2,450, consisting of an amount owed to Augusta Sod Co.

CASH PAYMENTS JOURNAL — Page 31

Date		Ck. No.	Account Debited	Post. Ref.	Other Accounts Dr.	Accounts Payable Dr.	Cash Cr.
2012							
June	4	203	Augusta Sod Co	✓		2,450	2,450
	5	204	Utilities Expense	54	410		410
	15	205	Kopp Lumber Co.	✓		5,135	5,135
	24	206	Schott's Fertilizer	✓		820	820
	30				410	8,405	8,815
					(✓)	(21)	(11)

PURCHASES JOURNAL — Page 22

Date		Account Credited	Post. Ref.	Accounts Payable Cr.	Landscaping Supplies Dr.	Other Accounts Dr	Post. Ref.	Amount
2012								
June	3	Kopp Lumber Co.	✓	5,135	5,135			
	7	Concrete Equipment Co.	✓	2,650		Equipment	18	2,650
	14	Schott's Fertilizer	✓	820	820			
	24	Augusta Sod Co.	✓	6,010	6,010			
	29	Kopp Lumber Co.	✓	7,200	7,200			
	30			21,815	19,165			2,650
				(21)	(14)			(✓)

(Continued)

Prepare a schedule of the accounts payable subsidiary ledger balances, and determine that the total agrees with the ending balance of the accounts payable account.

OBJ. 2

✔ Purchases journal, Accts. Pay., Total, $815

EX 5-17 Purchases and cash payments journals

Transactions related to purchases and cash payments completed by Marion Cleaning Services Inc. during the month of August 2012 are as follows:

Aug. 1. Issued Check No. 57 to Liquid Klean Supplies Inc. in payment of account, $275.
3. Purchased cleaning supplies on account from Sani-Fresh Products Inc., $160.
8. Issued Check No. 58 to purchase equipment from Carson Equipment Sales, $2,400.
12. Purchased cleaning supplies on account from Porter Products Inc., $250.
15. Issued Check No. 59 to Abbott Laundry Service in payment of account, $120.
18. Purchased supplies on account from Liquid Klean Supplies Inc., $265.
20. Purchased laundry services from Abbott Laundry Service on account, $140.
26. Issued Check No. 60 to Sani-Fresh Products Inc. in payment of August 3 invoice.
31. Issued Check No. 61 in payment of salaries, $5,200.

Prepare a purchases journal and a cash payments journal to record these transactions. The forms of the journals are similar to those illustrated in the text. Place a check mark (✓) in the Post. Ref. column to indicate when the accounts payable subsidiary ledger should be posted. Marion Cleaning Services Inc. uses the following accounts:

Cash	11
Cleaning Supplies	14
Equipment	18
Accounts Payable	21
Salary Expense	51
Laundry Service Expense	53

OBJ. 2

EX 5-18 Purchases and cash payments journals

Happy Tails Inc. has a September 1 accounts payable balance of $525, which consists of $340 due Labradore Inc. and $185 due Meow Mart Inc. Transactions related to purchases and cash payments completed by Happy Tails Inc. during the month of September 2012 are as follows:

Sept. 4. Purchased pet supplies from Best Friend Supplies Inc. on account, $230.
6. Issued Check No. 345 to Labradore Inc. in payment of account, $340.
13. Purchased pet supplies from Poodle Pals Inc., $660.
18. Issued Check No. 346 to Meow Mart Inc. in payment of account, $185.
19. Purchased office equipment from Office Helper Inc. on account, $2,250.
23. Issued Check No. 347 to Best Friend Supplies Inc. in payment of account from purchase made on September 4.
27. Purchased pet supplies from Meow Mart Inc. on account, $350.
30. Issued Check No. 348 to Sanders Inc. for cleaning expenses, $50.

a. Prepare a purchases journal and a cash payments journal to record these transactions. The forms of the journals are similar to those used in the text. Place a check mark (✓) in the Post. Ref. column to indicate when the accounts payable subsidiary ledger should be posted. Happy Tails Inc. uses the following accounts:

Cash	11
Office Equipment	13
Pet Supplies	14
Accounts Payable	21
Cleaning Expense	54

b. Prepare a listing of accounts payable subsidiary ledger balances on September 30, 2012. Verify that the total of the accounts payable subsidiary ledger balances equals the balance of the accounts payable control account on September 30, 2012.

c. Why does Happy Tails use a subsidiary ledger for accounts payable?

OBJ. 2

EX 5-19 Error in accounts payable ledger and accounts payable subsidiary ledger

After Gold Rush Assay Services Inc. had completed all postings for March in the current year (2012), the sum of the balances in the following accounts payable ledger did not agree with the $37,900 balance of the controlling account in the general ledger.

NAME *C. D. Greer and Son*
ADDRESS *972 S. Tenth Street*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	17		P30		3,750	3,750
	27		P31		12,000	15,750

NAME *Chester Chemical Supplies Inc.*
ADDRESS *1170 Mattis Avenue*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	1	Balance	✓			8,300
	9		P30		6,200	14,000
	12		J7	300		13,700
	20		CP23	5,800		7,900

NAME *Cutler and Powell*
ADDRESS *717 Elm Street*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	1	Balance	✓			6,100
	18		CP23	6,100		—
	29		P31		7,800	7,800

NAME *Montana Minerals Co.*
ADDRESS *1240 W. Main Street*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	1	Balance	✓			4,750
	10		CP22	4,750		—
	17		P30		3,700	3,700
	25		J7	900		1,800

NAME *Valley Power*
ADDRESS *915 E. Walnut Street*

Date		Item	Post. Ref.	Debit	Credit	Balance
2012						
Mar.	5		P30		3,150	3,150

Assuming that the controlling account balance of $37,900 has been verified as correct, (a) determine the error(s) in the preceding accounts and (b) prepare a listing of accounts payable subsidiary ledger balances (from the corrected accounts payable subsidiary ledger).

OBJ. 2

EX 5-20 Identify postings from special journals

ViewPoint Consulting Company makes most of its sales and purchases on credit. It uses the five journals described in this chapter (revenue, cash receipts, purchases, cash payments, and general journals). Identify the journal most likely used in recording the postings for selected transactions indicated by letter in the T accounts on the following page:

Cash			
a.	10,940	b.	6,500

Prepaid Rent			
		e.	1,200

Accounts Receivable			
c.	11,790	a.	10,940

Accounts Payable			
b.	6,500	d.	7,400

Office Supplies			
d.	7,400		

Fees Earned			
		c.	11,790

Rent Expense			
e.	1,200		

OBJ. 2

EX 5-21 Cash receipts journal

The following cash receipts journal headings have been suggested for a small service firm. List the errors you find in the headings.

CASH RECEIPTS JOURNAL **Page *12***

Date	Account Credited	Post. Ref.	Fees Earned Cr.	Accts. Rec. Cr.	Cash Cr.	Other Accounts Dr.

OBJ. 3

EX 5-22 Computerized accounting systems

Most computerized accounting systems use electronic forms to record transaction information, such as the invoice form illustrated at the top of Exhibit 7.

a. Identify the key input fields (spaces) in an electronic invoice form.

b. What accounts are posted from an electronic invoice form?

c. Why aren't special journal totals posted to control accounts at the end of the month in an electronic accounting system?

OBJ. 3, 4

EX 5-23 Computerized accounting systems and e-commerce

Apple Corporation's iTunes® provides digital products, such as music, video, and software, which can be downloaded to portable devices such as iPhone® and iPod®. Purchases made on iTunes are made with a credit card that is on file with the credit card processing company. Such transactions are considered cash transactions. Once the purchase is made, the consumer can download the requested digital product to their portable device for their enjoyment and the charge will show up on their credit card bill.

a. What kind of e-commerce application is described by Apple iTunes?

b. Assume you purchased 12 songs for $1 each on iTunes. Provide the journal entry generated by Apple's e-commerce application.

c. If a special journal were used, what type of special journal would be used to record this sales transaction?

d. If an electronic form were used, what type of electronic form would be used to record this sales transaction?

e. How might you expect revenues to be recorded for a B2C e-commerce transaction?

OBJ. 4

EX 5-24 E-commerce

For each of the following companies, determine if their e-commerce strategy is primarily business-to-consumer (B2C), business-to-business (B2B), or both. Use the Internet to investigate each company's site in conducting your research.

a. Amazon.com

b. Dell Inc.

c. Dupont

d. Intuit Inc.

e. L.L. Bean, Inc.

f. W.W. Grainger, Inc.

OBJ. 5

FAI

EX 5-25 Segment revenue horizontal analysis

Starbucks Corporation reported the following geographical segment revenues for fiscal years 2009 and 2008:

	2009 (in millions)	2008 (in millions)
United States	$7,104	$ 7,532
International	1,920	2,103
Global consumer products	750	748
Total revenues	$9,774	$10,383

a. Prepare a horizontal analysis of the segment data using 2008 as the base year.

b. Prepare a vertical analysis of the segment data.

c. What conclusions can be drawn from your analyses?

OBJ. 5

FAI

EX 5-26 Segment revenue vertical analysis

News Corporation is one of the world's largest entertainment companies that includes Twentieth Century Fox films, Fox Broadcasting, Fox News, the FX, and various satellite, cable, and publishing properties. The company provided revenue disclosures by its major product segments in the notes to its financial statements as follows:

Major Product Segments	For the Year Ended June 30, 2009 (in millions)
Filmed Entertainment	$ 5,936
Television	4,602
Cable Network Programming	5,580
Direct Broadcast Satellite Television	3,760
Magazines and Inserts	1,168
Newspapers and Information Services	5,858
Book Publishing	1,141
Other	2,378
Total revenues	$30,423

a. Provide a vertical analysis of the product segment revenues.

b. Are the revenues of News Corporation diversified or concentrated within a product segment? Explain.

OBJ. 5

FAI

EX 5-27 Segment revenue horizontal and vertical analyses

The comparative regional segment revenues for **McDonald's Corporation** is as follows:

	2009 (in millions)	2008 (in millions)
United States	$ 7,943.8	$ 8,078.3
Europe	9,273.8	9,922.9
APMEA*	4,337.0	4,230.8
Other Countries & Corporate	1,190.1	1,290.4
Total revenues	$22,744.7	$23,522.4

*APMEA = Asia/Pacific, Middle East, Africa

a. Provide a horizontal analysis of the regional segment revenues using 2008 as the base year. Round whole percents to one digit.

b. Provide a vertical analysis of the regional segment revenues for both years. Round whole percents to one digit.

c. What conclusions can be drawn from your analyses?

Problems Series A

OBJ. 2, 3

✔ 1. Revenue journal, total fees earned, $830

PR 5-1A Revenue journal; accounts receivable and general ledgers

Newton Learning Centers was established on October 20, 2012, to provide educational services. The services provided during the remainder of the month are as follows:

Oct. 21. Issued Invoice No. 1 to J. Dunlop for $60 on account.
22. Issued Invoice No. 2 to K. Todd for $255 on account.
24. Issued Invoice No. 3 to T. Patrick for $55 on account.
25. Provided educational services, $100, to K. Todd in exchange for educational supplies.
27. Issued Invoice No. 4 to F. Mintz for $150 on account.
30. Issued Invoice No. 5 to D. Chase for $135 on account.
30. Issued Invoice No. 6 to K. Todd for $105 on account.
31. Issued Invoice No. 7 to T. Patrick for $70 on account.

Instructions

1. Journalize the transactions for October, using a single-column revenue journal and a two-column general journal. Post to the following customer accounts in the accounts receivable ledger, and insert the balance immediately after recording each entry: D. Chase; J. Dunlop; F. Mintz; T. Patrick; K. Todd.
2. Post the revenue journal and the general journal to the following accounts in the general ledger, inserting the account balances only after the last postings:

12	Accounts Receivable
13	Supplies
41	Fees Earned

3. a. What is the sum of the balances of the accounts in the subsidiary ledger at October 31?
   b. What is the balance of the controlling account at October 31?
4. Assume Newton Learning Centers began using a computerized accounting system to record the sales transactions on November 1. What are some of the benefits of the computerized system over the manual system?

OBJ. 2, 3

✔ 3. Total cash receipts, $32,870

PR 5-2A Revenue and cash receipts journals; accounts receivable and general ledgers

Transactions related to revenue and cash receipts completed by Aspen Architects Co. during the period June 2–30, 2012, are as follows:

June 2. Issued Invoice No. 793 to Nickle Co., $4,900.
5. Received cash from Mendez Co. for the balance owed on its account.
6. Issued Invoice No. 794 to Preston Co., $1,760.
13. Issued Invoice No. 795 to Shilo Co., $2,630.
Post revenue and collections to the accounts receivable subsidiary ledger.
15. Received cash from Preston Co. for the balance owed on June 1.
16. Issued Invoice No. 796 to Preston Co., $5,500.
Post revenue and collections to the accounts receivable subsidiary ledger.
19. Received cash from Nickle Co. for the balance due on invoice of June 2.
20. Received cash from Preston Co. for invoice of June 6.
22. Issued Invoice No. 797 to Mendez Co., $7,240.
25. Received $2,000 note receivable in partial settlement of the balance due on the Shilo Co. account.
30. Recorded cash fees earned, $12,350.
Post revenue and collections to the accounts receivable subsidiary ledger.

Instructions

1. Insert the following balances in the general ledger as of June 1:

11	Cash	$11,350
12	Accounts Receivable	13,860
14	Notes Receivable	6,000
41	Fees Earned	—

2. Insert the following balances in the accounts receivable subsidiary ledger as of June 1:

Mendez Co.	$7,970
Nickle Co.	—
Preston Co.	5,890
Shilo Co.	—

3. Prepare a single-column revenue journal (p. 40) and a cash receipts journal (p. 36). Use the following column headings for the cash receipts journal: Fees Earned Cr., Accounts Receivable Cr., and Cash Dr. The Fees Earned column is used to record cash fees. Insert a check mark (✓) in the Post. Ref. column when recording cash fees.
4. Using the two special journals and the two-column general journal (p. 1), journalize the transactions for June. Post to the accounts receivable subsidiary ledger, and insert the balances at the points indicated in the narrative of transactions. Determine the balance in the customer's account before recording a cash receipt.
5. Total each of the columns of the special journals, and post the individual entries and totals to the general ledger. Insert account balances after the last posting.
6. Determine that the subsidiary ledger agrees with the controlling account in the general ledger.
7. Why would an automated system omit postings to a control account as performed in step 5 for Accounts Receivable?

OBJ. 2, 4

✔ 5b. Total accounts payable credit, $14,195

PR 5-3A Purchases, accounts payable account, and accounts payable ledger

English Garden Landscaping designs and installs landscaping. The landscape designers and office staff use office supplies, while field supplies (rock, bark, etc.) are used in the actual landscaping. Purchases on account completed by English Garden Landscaping during January 2012 are as follows:

Jan. 2. Purchased office supplies on account from Meade Co., $350.
5. Purchased office equipment on account from Peach Computers Co., $3,150.
9. Purchased office supplies on account from Executive Office Supply Co., $290.
13. Purchased field supplies on account from Yamura Co., $1,140.
14. Purchased field supplies on account from Naples Co., $2,680.
17. Purchased field supplies on account from Yamura Co., $1,050.
24. Purchased field supplies on account from Naples Co., $3,240.
29. Purchased office supplies on account from Executive Office Supply Co., $260.
31. Purchased field supplies on account from Naples Co., $1,000.

Instructions

1. Insert the following balances in the general ledger as of January 1:

14	Field Supplies	$ 5,920
15	Office Supplies	750
18	Office Equipment	12,300
21	Accounts Payable	1,035

2. Insert the following balances in the accounts payable subsidiary ledger as of January 1:

Executive Office Supply Co.	$340
Meade Co.	695
Naples Co.	—
Peach Computers Co.	—
Yamura Co.	—

3. Journalize the transactions for January, using a purchases journal (p. 30) similar to the one illustrated in this chapter. Prepare the purchases journal with columns for Accounts

(Continued)

Payable, Field Supplies, Office Supplies, and Other Accounts. Post to the creditor accounts in the accounts payable subsidiary ledger immediately after each entry.

4. Post the purchases journal to the accounts in the general ledger.
5. a. What is the sum of the balances in the subsidiary ledger at January 31?
   b. What is the balance of the controlling account at January 31?
6. What type of e-commerce application would be used to plan and coordinate suppliers?

OBJ. 2

✔ 1. Total cash payments, $93,615

PR 5-4A Purchases and cash payments journals; accounts payable and general ledgers

Green Mountain Water Testing Service was established on November 16, 2012. Green Mountain uses field equipment and field supplies (chemicals and other supplies) to analyze water for unsafe contaminants in streams, lakes, and ponds. Transactions related to purchases and cash payments during the remainder of November are as follows:

Nov. 16. Issued Check No. 1 in payment of rent for the remainder of November, $1,700.
16. Purchased field supplies on account from Hydro Supply Co., $4,380.
16. Purchased field equipment on account from Test-Rite Equipment Co., $16,900.
17. Purchased office supplies on account from Best Office Supply Co., $375.
19. Issued Check No. 2 in payment of field supplies, $2,560, and office supplies, $300.

Post the journals to the accounts payable subsidiary ledger.

23. Purchased office supplies on account from Best Office Supply Co., $580.
23. Issued Check No. 3 to purchase land, $45,000.
24. Issued Check No. 4 to Hydro Supply Co. in payment of invoice, $4,380.
26. Issued Check No. 5 to Test-Rite Equipment Co. in payment of invoice, $16,900.

Post the journals to the accounts payable subsidiary ledger.

30. Acquired land in exchange for field equipment having a cost of $8,000.
30. Purchased field supplies on account from Hydro Supply Co., $5,900.
30. Issued Check No. 6 to Best Office Supply Co. in payment of invoice, $375.
30. Purchased the following from Test-Rite Equipment Co. on account: field supplies, $900, and field equipment, $3,700.
30. Issued Check No. 7 in payment of salaries, $22,400.

Post the journals to the accounts payable subsidiary ledger.

Instructions

1. Journalize the transactions for November. Use a purchases journal and a cash payments journal, similar to those illustrated in this chapter, and a two-column general journal. Use debit columns for Field Supplies, Office Supplies, and Other Accounts in the purchases journal. Refer to the following partial chart of accounts:

11	Cash	19	Land
14	Field Supplies	21	Accounts Payable
15	Office Supplies	61	Salary Expense
17	Field Equipment	71	Rent Expense

At the points indicated in the narrative of transactions, post to the following accounts in the accounts payable subsidiary ledger:

Best Office Supply Co.
Hydro Supply Co.
Test-Rite Equipment Co.

2. Post the individual entries (Other Accounts columns of the purchases journal and the cash payments journal and both columns of the general journal) to the appropriate general ledger accounts.
3. Total each of the columns of the purchases journal and the cash payments journal, and post the appropriate totals to the general ledger. (Because the problem does not include transactions related to cash receipts, the cash account in the ledger will have a credit balance.)
4. Sum the balances of the accounts payable subsidiary ledger.
5. Why might Green Mountain consider using a subsidiary ledger for the field equipment?

OBJ. 2

✔ 2. Total cash receipts, $58,160

PR 5-5A All journals and general ledger; trial balance

The transactions completed by Sure N' Safe Courier Company during July 2012, the first month of the fiscal year, were as follows:

July 1. Issued Check No. 610 for July rent, $7,500.
2. Issued Invoice No. 940 to Capps Co., $2,680.
3. Received check for $6,700 from Trimble Co. in payment of account.
5. Purchased a vehicle on account from Browning Transportation, $34,600.
6. Purchased office equipment on account from Austin Computer Co., $5,200.
6. Issued Invoice No. 941 to Dawar Co., $5,970.
9. Issued Check No. 611 for fuel expense, $900.
10. Received check from Sing Co. in payment of $3,980 invoice.
10. Issued Check No. 612 for $1,040 to Office To Go Inc. in payment of invoice.
10. Issued Invoice No. 942 to Joy Co., $2,640.
11. Issued Check No. 613 for $3,670 to Essential Supply Co. in payment of account.
11. Issued Check No. 614 for $725 to Porter Co. in payment of account.
12. Received check from Capps Co. in payment of $2,680 invoice.
13. Issued Check No. 615 to Browning Transportation in payment of $34,600 balance.
16. Issued Check No. 616 for $42,100 for cash purchase of a vehicle.
16. Cash fees earned for July 1–16, $18,900.
17. Issued Check No. 617 for miscellaneous administrative expense, $750.
18. Purchased maintenance supplies on account from Essential Supply Co., $1,950.
19. Purchased the following on account from McClain Co.: maintenance supplies, $1,900; office supplies, $470.
20. Issued Check No. 618 in payment of advertising expense, $2,350.
20. Used $4,000 maintenance supplies to repair delivery vehicles.
23. Purchased office supplies on account from Office To Go Inc., $600.
24. Issued Invoice No. 943 to Sing Co., $7,000.
24. Issued Check No. 619 to J. Bourne as a personal withdrawal, $3,000.
25. Issued Invoice No. 944 to Dawar Co., $6,450.
25. Received check for $4,500 from Trimble Co. in payment of balance.
26. Issued Check No. 620 to Austin Computer Co. in payment of $5,200 invoice of July 6.
30. Issued Check No. 621 for monthly salaries as follows: driver salaries, $18,900; office salaries, $8,300.
31. Cash fees earned for July 17–31, $21,400.
31. Issued Check No. 622 in payment for office supplies, $800.

Instructions

1. Enter the following account balances in the general ledger as of July 1:

11	Cash	$167,900	32	J. Bourne, Drawing	—
12	Accounts Receivable	15,180	41	Fees Earned	—
14	Maintenance Supplies	10,850	51	Driver Salaries Expense	—
15	Office Supplies	4,900	52	Maintenance Supplies Exp.	—
16	Office Equipment	28,500	53	Fuel Expense	—
17	Accum. Depr.—Office Equip.	6,900	61	Office Salaries Expense	—
18	Vehicles	95,900	62	Rent Expense	—
19	Accum. Depr.—Vehicles	14,700	63	Advertising Expense	—
21	Accounts Payable	5,435	64	Miscellaneous Administrative Expense	—
31	J. Bourne, Capital	296,195			

(Continued)

2. Journalize the transactions for July 2012, using the following journals similar to those illustrated in this chapter: cash receipts journal (p. 31), purchases journal (p. 37, with columns for Accounts Payable, Maintenance Supplies, Office Supplies, and Other Accounts), single-column revenue journal (p. 35), cash payments journal (p. 34), and two-column general journal (p. 1). Assume that the daily postings to the individual accounts in the accounts payable ledger and the accounts receivable ledger have been made.
3. Post the appropriate individual entries to the general ledger.
4. Total each of the columns of the special journals, and post the appropriate totals to the general ledger; insert the account balances.
5. Prepare a trial balance.

Problems Series B

OBJ. 2, 3

✔ 1. Revenue journal, total fees earned, $2,320

PR 5-1B Revenue journal; accounts receivable and general ledgers

Sentinel Security Services was established on March 15, 2012, to provide security services. The services provided during the remainder of the month are listed below.

Mar. 18. Issued Invoice No. 1 to Murphy Co. for $410 on account.
20. Issued Invoice No. 2 to Qwik-Mart Co. for $290 on account.
24. Issued Invoice No. 3 to Goforth Co. for $625 on account.
27. Issued Invoice No. 4 to Carson Co. for $510 on account.
28. Issued Invoice No. 5 to Amber Waves Co. for $100 on account.
28. Provided security services, $90, to Qwik-Mart Co. in exchange for supplies.
30. Issued Invoice No. 6 to Qwik-Mart Co. for $140 on account.
31. Issued Invoice No. 7 to Goforth Co. for $245 on account.

Instructions

1. Journalize the transactions for March, using a single-column revenue journal and a two-column general journal. Post to the following customer accounts in the accounts receivable ledger, and insert the balance immediately after recording each entry: Amber Waves Co.; Carson Co.; Goforth Co.; Murphy Co.; Qwik-Mart Co.
2. Post the revenue journal to the following accounts in the general ledger, inserting the account balances only after the last postings:

12	Accounts Receivable
14	Supplies
41	Fees Earned

3. a. What is the sum of the balances of the accounts in the subsidiary ledger at March 31?
   b. What is the balance of the controlling account at March 31?
4. Assume Sentinel Security Services began using a computerized accounting system to record the sales transactions on April 1. What are some of the benefits of the computerized system over the manual system?

OBJ. 2, 3

✔ 3. Total cash receipts, $7,690

PR 5-2B Revenue and cash receipts journals; accounts receivable and general ledgers

Transactions related to revenue and cash receipts completed by Pinnacle Engineering Services during the period April 2–30, 2012, are as follows:

Apr. 2. Issued Invoice No. 717 to Yee Co., $950.
3. Received cash from Auto-Flex Co. for the balance owed on its account.
7. Issued Invoice No. 718 to Park Development Co., $530.
10. Issued Invoice No. 719 to Ridge Communities, $2,350.

Post revenue and collections to the accounts receivable subsidiary ledger.

Apr. 14. Received cash from Park Development Co. for the balance owed on April 1.
16. Issued Invoice No. 720 to Park Development Co., $325.
Post revenue and collections to the accounts receivable subsidiary ledger.
18. Received cash from Yee Co. for the balance due on invoice of April 2.
20. Received cash from Park Development Co. for invoice of April 7.
23. Issued Invoice No. 721 to Auto-Flex Co., $790.
30. Recorded cash fees earned, $3,950.
30. Received office equipment of $1,500 in partial settlement of balance due on the Ridge Communities account.
Post revenue and collections to the accounts receivable subsidiary ledger.

Instructions

1. Insert the following balances in the general ledger as of April 1:

11	Cash	$18,340
12	Accounts Receivable	2,260
18	Office Equipment	34,700
41	Fees Earned	—

2. Insert the following balances in the accounts receivable subsidiary ledger as of April 1:

Auto-Flex Co.	$1,460
Park Development Co.	800
Ridge Communities	—
Yee Co.	—

3. Prepare a single-column revenue journal (p. 40) and a cash receipts journal (p. 36). Use the following column headings for the cash receipts journal: Fees Earned Cr., Accounts Receivable Cr., and Cash Dr. The Fees Earned column is used to record cash fees. Insert a check mark (✓) in the Post. Ref. column when recording cash fees.
4. Using the two special journals and the two-column general journal (p. 1), journalize the transactions for April. Post to the accounts receivable subsidiary ledger, and insert the balances at the points indicated in the narrative of transactions. Determine the balance in the customer's account before recording a cash receipt.
5. Total each of the columns of the special journals, and post the individual entries and totals to the general ledger. Insert account balances after the last posting.
6. Determine that the subsidiary ledger agrees with the controlling account in the general ledger.
7. Why would an automated system omit postings to a control account as performed in step 5 for Accounts Receivable?

OBJ. 2, 4

✔ 5a. Total accounts payable credit, $27,370

PR 5-3B Purchases, accounts payable account, and accounts payable ledger

True Plumb Surveyors provides survey work for construction projects. The office staff use office supplies, while surveying crews use field supplies. Purchases on account completed by True Plumb Surveyors during August 2012 are as follows:

Aug. 1. Purchased field supplies on account from Wendell Co., $2,670.
3. Purchased office supplies on account from Lassiter Co., $290.
8. Purchased field supplies on account from Ready Supplies, $3,900.
12. Purchased field supplies on account from Wendell Co., $2,950.
15. Purchased office supplies on account from J-Mart Co., $400.
19. Purchased office equipment on account from Accu-Vision Supply Co., $7,350.
23. Purchased field supplies on account from Ready Supplies, $2,140.
26. Purchased office supplies on account from J-Mart Co., $205.
30. Purchased field supplies on account from Ready Supplies, $2,750.

Instructions

1. Insert the following balances in the general ledger as of August 1:

14	Field Supplies	$ 6,200
15	Office Supplies	1,490
18	Office Equipment	19,400
21	Accounts Payable	4,715

2. Insert the following balances in the accounts payable subsidiary ledger as of August 1:

Accu-Vision Supply Co.	$3,600
J-Mart Co.	690
Lassiter Co.	425
Ready Supplies	—
Wendell Co.	—

3. Journalize the transactions for August, using a purchases journal (p. 30) similar to the one illustrated in this chapter. Prepare the purchases journal with columns for Accounts Payable, Field Supplies, Office Supplies, and Other Accounts. Post to the creditor accounts in the accounts payable ledger immediately after each entry.
4. Post the purchases journal to the accounts in the general ledger.
5. a. What is the sum of the balances in the subsidiary ledger at August 31?
   b. What is the balance of the controlling account at August 31?
6. What type of e-commerce application would be used to plan and coordinate suppliers?

OBJ. 2

✔ 1. Total cash payments, $265,000

PR 5-4B Purchases and cash payments journals; accounts payable and general ledgers

Texas Tea Exploration Co. was established on July 15, 2012, to provide oil-drilling services. Texas Tea uses field equipment (rigs and pipe) and field supplies (drill bits and lubricants) in its operations. Transactions related to purchases and cash payments during the remainder of July are as follows:

July 16. Issued Check No. 1 in payment of rent for the remainder of July, $6,000.
16. Purchased field equipment on account from Petro Services Inc., $26,400.
17. Purchased field supplies on account from Culver Supply Co., $8,750.
18. Issued Check No. 2 in payment of field supplies, $3,150, and office supplies, $500.
20. Purchased office supplies on account from A-One Office Supply Co., $1,200.
Post the journals to the accounts payable subsidiary ledger.
24. Issued Check No. 3 to Petro Services Inc., in payment of July 16 invoice.
26. Issued Check No. 4 to Culver Supply Co. in payment of July 17 invoice.
28. Issued Check No. 5 to purchase land, $190,000.
28. Purchased office supplies on account from A-One Office Supply Co., $2,970.
Post the journals to the accounts payable subsidiary ledger.
30. Purchased the following from Petro Services Inc. on account: field supplies, $22,980 and office equipment, $4,200.
30. Issued Check No. 6 to A-One Office Supply Co. in payment of July 20 invoice.
30. Purchased field supplies on account from Culver Supply Co., $10,200.
31. Issued Check No. 7 in payment of salaries, $29,000.
31. Rented building for one year in exchange for field equipment having a cost of $14,000.
Post the journals to the accounts payable subsidiary ledger.

Instructions

1. Journalize the transactions for July. Use a purchases journal and a cash payments journal, similar to those illustrated in this chapter, and a two-column general journal. Set debit columns for Field Supplies, Office Supplies, and Other Accounts in the purchases journal. Refer to the following partial chart of accounts:

11	Cash	18	Office Equipment
14	Field Supplies	19	Land
15	Office Supplies	21	Accounts Payable
16	Prepaid Rent	61	Salary Expense
17	Field Equipment	71	Rent Expense

At the points indicated in the narrative of transactions, post to the following subsidiary accounts in the accounts payable ledger:

A-One Office Supply Co.
Culver Supply Co.
Petro Services Inc.

2. Post the individual entries (Other Accounts columns of the purchases journal and the cash payments journal; both columns of the general journal) to the appropriate general ledger accounts.
3. Total each of the columns of the purchases journal and the cash payments journal, and post the appropriate totals to the general ledger. (Because the problem does not include transactions related to cash receipts, the cash account in the ledger will have a credit balance.)
4. Sum the balances of the accounts payable subsidiary ledger.
5. Why might Texas Tea consider using a subsidiary ledger for the field equipment?

OBJ. 2

✔ 2. Total cash receipts, $84,390

PR 5-5B All journals and general ledger; trial balance

The transactions completed by By Tomorrow Express Company during May 2012, the first month of the fiscal year, were as follows:

May 1. Issued Check No. 205 for May rent, $1,500.
2. Purchased a vehicle on account from McIntyre Sales Co., $23,700.
3. Purchased office equipment on account from Office Mate Inc., $640.
5. Issued Invoice No. 91 to Martin Co., $6,000.
6. Received check for $6,890 from Chavez Co. in payment of invoice.
7. Issued Invoice No. 92 to Trent Co., $8,650.
9. Issued Check No. 206 for fuel expense, $710.
10. Received check for $9,500 from Sajeev Co. in payment of invoice.
10. Issued Check No. 207 to Office City in payment of $500 invoice.
10. Issued Check No. 208 to Bastille Co. in payment of $1,450 invoice.
11. Issued Invoice No. 93 to Jarvis Co., $6,900.
11. Issued Check No. 209 to Porter Co. in payment of $375 invoice.
12. Received check for $6,000 from Martin Co. in payment of invoice.
13. Issued Check No. 210 to McIntyre Sales Co. in payment of $23,700 invoice.
16. Cash fees earned for May 1–16, $24,600.
16. Issued Check No. 211 for purchase of a vehicle, $24,000.
17. Issued Check No. 212 for miscellaneous administrative expense, $4,360.
18. Purchased maintenance supplies on account from Bastille Co., $1,790.
18. Received check for rent revenue on office space, $2,500.
19. Purchased the following on account from Master Supply Co.: maintenance supplies, $2,500, and office supplies, $2,000.
20. Issued Check No. 213 in payment of advertising expense, $7,810.
20. Used maintenance supplies with a cost of $4,200 to repair vehicles.
21. Purchased office supplies on account from Office City, $790.
24. Issued Invoice No. 94 to Sajeev Co., $8,000.
25. Received check for $12,500 from Chavez Co. in payment of invoice.

May 25. Issued Invoice No. 95 to Trent Co., $5,900.
26. Issued Check No. 214 to Office Mate Inc. in payment of $640 invoice.
27. Issued Check No. 215 to J. Wu as a personal withdrawal, $3,500.
30. Issued Check No. 216 in payment of driver salaries, $29,300.
31. Issued Check No. 217 in payment of office salaries, $19,400.
31. Issued Check No. 218 for office supplies, $560.
31. Cash fees earned for May 17–31, $22,400.

Instructions

1. Enter the following account balances in the general ledger as of May 1:

11	Cash	$ 65,200	32	J. Wu, Drawing	—
12	Accounts Receivable	28,890	41	Fees Earned	—
14	Maintenance Supplies	7,240	42	Rent Revenue	—
15	Office Supplies	3,690	51	Driver Salaries Expense	—
16	Office Equipment	17,300	52	Maintenance Supplies Expense	—
17	Accum. Depr.—Office Equip.	4,250	53	Fuel Expense	—
18	Vehicles	62,400	61	Office Salaries Expense	—
19	Accum. Depr.—Vehicles	17,800	62	Rent Expense	—
21	Accounts Payable	2,325	63	Advertising Expense	—
31	J. Wu, Capital	160,345	64	Miscellaneous Administrative Exp.	—

2. Journalize the transactions for May 2012, using the following journals similar to those illustrated in this chapter: single-column revenue journal (p. 35), cash receipts journal (p. 31), purchases journal (p. 37, with columns for Accounts Payable, Maintenance Supplies, Office Supplies, and Other Accounts), cash payments journal (p. 34), and two-column general journal (p. 1). Assume that the daily postings to the individual accounts in the accounts payable ledger and the accounts receivable ledger have been made.
3. Post the appropriate individual entries to the general ledger.
4. Total each of the columns of the special journals, and post the appropriate totals to the general ledger; insert the account balances.
5. Prepare a trial balance.

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Van Etten

CHAPTER

6

Accounting for Merchandising Businesses

Dollar Tree Stores, Inc.

When you are low on cash but need to pick up party supplies, housewares, or other consumer items, where do you go? Many shoppers are turning to **Dollar Tree Stores, Inc.**, the nation's largest single price point dollar retailer with over 3,400 stores in 48 states. For the fixed price of $1 on merchandise in its stores, Dollar Tree has worked hard providing "new treasures" every week for the entire family.

Despite the fact that items cost only $1, the accounting for a merchandiser, like Dollar Tree, is more complex than for a service company. This is because a service company sells only services and has no inventory. With Dollar Tree's locations and merchandise, the company must design its accounting system to not only record the receipt of goods for resale, but also to keep track of what merchandise is available for sale as well as where the merchandise is located. In addition, Dollar Tree must record the sales and costs of the goods sold for each of its stores. Finally, Dollar Tree must record such data as delivery costs, merchandise discounts, and merchandise returns.

This chapter focuses on the accounting principles and concepts for a merchandising business. In doing so, the basic differences between merchandiser and service company activities are highlighted. The financial statements of a merchandising business and accounting for merchandise transactions are also described and illustrated.

Learning Objectives

OBJ.	After studying this chapter, you should be able to:	Example Exercises	Page
1	Distinguish between the activities and financial statements of service and merchandising businesses.		
	Nature of Merchandising Businesses	EE 6-1	259
2	Describe and illustrate the financial statements of a merchandising business.		
	Financial Statements for a Merchandising Business		
	Multiple-Step Income Statement		
	Single-Step Income Statement		
	Statement of Owner's Equity		
	Balance Sheet		
3	Describe and illustrate the accounting for merchandise transactions including: • sale of merchandise • purchase of merchandise • freight • sales taxes and trade discounts • dual nature of merchandising transactions		
	Merchandising Transactions		
	Chart of Accounts for a Merchandising Business		
	Sales Transactions	EE 6-2	269
	Purchase Transactions	EE 6-3	272
	Freight	EE 6-4	275
	Summary: Recording Merchandise Inventory		
	Sales Taxes and Trade Discounts		
	Dual Nature of Merchandise Transactions	EE 6-5	278
4	Describe the adjusting and closing process for a merchandising business.		
	The Adjusting and Closing Process		
	Adjusting Entry for Inventory Shrinkage	EE 6-6	279
	Closing Entries		
5	Describe and illustrate the use of the ratio of net sales to assets in evaluating a company's operating performance.		
	Financial Analysis and Interpretation: Ratio of Net Sales to Assets	EE 6-7	281

At a Glance 6 Page 287

OBJ. 1 Distinguish between the activities and financial statements of service and merchandising businesses.

Nature of Merchandising Businesses

The activities of a service business differ from those of a merchandising business. These differences are illustrated in the following condensed income statements:

Service Business	
Fees earned	$XXX
Operating expenses	–XXX
Net income	$XXX

Merchandising Business	
Sales	$XXX
Cost of merchandise sold	–XXX
Gross profit	$XXX
Operating expenses	–XXX
Net income	$XXX

The revenue activities of a service business involve providing services to customers. On the income statement for a service business, the revenues from services are reported as *fees earned*. The operating expenses incurred in providing the services are subtracted from the fees earned to arrive at *net income*.

In contrast, the revenue activities of a merchandising business involve the buying and selling of merchandise. A merchandising business first purchases merchandise to sell to its customers. When this merchandise is sold, the revenue is reported as sales, and its cost is recognized as an expense. This expense is called the **cost of merchandise sold**. The cost of merchandise sold is subtracted from sales to arrive at gross profit. This amount is called **gross profit** because it is the profit *before* deducting operating expenses.

Merchandise on hand (not sold) at the end of an accounting period is called **merchandise inventory**. Merchandise inventory is reported as a current asset on the balance sheet.

Example Exercise 6-1 Gross Profit

OBJ. 1

During the current year, merchandise is sold for $250,000 cash and for $975,000 on account. The cost of the merchandise sold is $735,000. What is the amount of the gross profit?

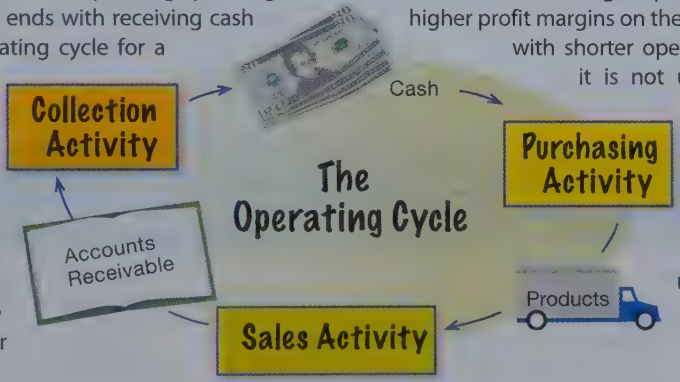
Follow My Example 6-1

The gross profit is $490,000 ($250,000 + $975,000 – $735,000).

Practice Exercises: **PE 6-1A, PE 6-1B**

The Operating Cycle

The operations of a merchandising business involve the purchase of merchandise for sale (purchasing), the sale of the products to customers (sales), and the receipt of cash from customers (collection). This overall process is referred to as the *operating cycle*. Thus, the operating cycle begins with spending cash, and it ends with receiving cash from customers. The operating cycle for a merchandising business is shown to the right.



Operating cycles for retailers are usually shorter than for manufacturers because retailers purchase goods in a form ready for sale to the customer. Of course, some retailers will have shorter operating cycles than others because of the nature of their products. For example, a jewelry store or an automobile dealer normally has a longer operating cycle than a consumer electronics store or a grocery store.

Businesses with longer operating cycles normally have higher profit margins on their products than businesses with shorter operating cycles. For example, it is not unusual for jewelry stores to price their jewelry at 30%–50% above cost. In contrast, grocery stores operate on very small profit margins, often below 5%. Grocery stores make up the difference by selling their products more quickly.

Financial Statements for a Merchandising Business

OBJ. 2 Describe and illustrate the financial statements of a merchandising business.

This section illustrates the financial statements for **NetSolutions** after it becomes a retailer of computer hardware and software. During 2011, Chris Clark implemented the second phase of NetSolutions' business plan. In doing so, Chris notified clients that beginning July 1, 2012, NetSolutions would no longer offer consulting services. Instead, it would become a retailer.

NetSolutions' business strategy is to offer personalized service to individuals and small businesses who are upgrading or purchasing new computer systems. NetSolutions' personal service includes a no-obligation, on-site assessment of the customer's computer needs. By providing personalized service and follow-up, Chris feels that NetSolutions can compete effectively against such retailers as **Best Buy** and **Office Depot, Inc.**

Multiple-Step Income Statement

The 2013 income statement for NetSolutions is shown in Exhibit 1.[1] This form of income statement, called a **multiple-step income statement**, contains several sections, subsections, and subtotals.

---

[1] The NetSolutions income statement for 2013 is used because it allows a better illustration of the computation of the cost of merchandise sold in the appendix to this chapter.

Revenue from Sales This section of the multiple-step income statement consists of sales, sales returns and allowances, sales discounts, and net sales. This section, as shown in Exhibit 1, is as follows:

Revenue from sales:			
Sales		$720,185	
Less: Sales returns and allowances	$6,140		
Sales discounts	5,790	11,930	
Net sales			$708,255

Sales is the total amount charged customers for merchandise sold, including cash sales and sales on account. During 2013, NetSolutions sold merchandise of $720,185 for cash or on account.

Sales returns and allowances are granted by the seller to customers for damaged or defective merchandise. In such cases, the customer may either return the merchandise or accept an allowance from the seller. NetSolutions reported $6,140 of sales returns and allowances during 2013.

Sales discounts are granted by the seller to customers for early payment of amounts owed. For example, a seller may offer a customer a 2% discount on a sale of $10,000 if the customer pays within 10 days. If the customer pays within the 10-day period, the seller receives cash of $9,800, and the buyer receives a discount of $200 ($10,000 × 2%). NetSolutions reported $5,790 of sales discounts during 2013.

EXHIBIT 1

Multiple-Step Income Statement

NetSolutions
Income Statement
For the Year Ended December 31, 2013

Revenue from sales:			
Sales		$720,185	
Less: Sales returns and allowances	$ 6,140		
Sales discounts	5,790	11,930	
Net sales			$708,255
Cost of merchandise sold			525,305
Gross profit			$182,950
Operating expenses:			
Selling expenses:			
Sales salaries expense	$53,430		
Advertising expense	10,860		
Depreciation expense—store equipment	3,100		
Delivery expense	2,800		
Miscellaneous selling expense	630		
Total selling expenses		$ 70,820	
Administrative expenses:			
Office salaries expense	$21,020		
Rent expense	8,100		
Depreciation expense—office equipment	2,490		
Insurance expense	1,910		
Office supplies expense	610		
Miscellaneous administrative expense	760		
Total administrative expenses		34,890	
Total operating expenses			105,710
Income from operations			$ 77,240
Other income and expense:			
Rent revenue		$ 600	
Interest expense		(2,440)	(1,840)
Net income			$ 75,400

Net sales is determined by subtracting sales returns and allowances and sales discounts from sales. As shown in Exhibit 1, NetSolutions reported $708,255 of net sales during 2013. Some companies report only net sales and report sales, sales returns and allowances, and sales discounts in notes to the financial statements.

Cost of Merchandise Sold As shown in Exhibit 1, NetSolutions reported cost of merchandise sold of $525,305 during 2013. The cost of merchandise sold is the cost of merchandise sold to customers. Merchandise costs consist of all the costs of acquiring the merchandise and readying it for sale, such as purchase and freight costs. Recording these costs is described and illustrated later in this chapter.

Two systems of accounting for recording and reporting the cost of merchandise sold are:

1. Periodic inventory system
2. Perpetual inventory system

For many merchandising businesses, the cost of merchandise sold is usually the largest expense. For example, the approximate percentage of cost of merchandise sold to sales is 63% for JCPenney and 66% for The Home Depot.

Under the **periodic inventory system**, the inventory records do not show the amount available for sale or the amount sold during the period. Instead, the cost of merchandise sold and the merchandise on hand are determined at the end of the period by physically counting the inventory. The periodic inventory system is described and illustrated in the appendix to this chapter.

Under the **perpetual inventory system**, each purchase and sale of merchandise is recorded in the inventory and the cost of merchandise sold accounts. As a result, the amounts of merchandise available for sale and sold are continuously (perpetually) updated in the inventory records. Because many retailers use computerized systems, the perpetual inventory system is widely used.

Under a perpetual inventory system, the cost of merchandise sold is reported as a single line on the income statement. An example of such reporting is illustrated in Exhibit 1 for NetSolutions. Because of its wide use, the perpetual inventory system is used in the remainder of this chapter.

Gross Profit Gross profit is computed by subtracting the cost of merchandise sold from net sales, as shown below.

Net sales	$708,255
Cost of merchandise sold	525,305
Gross profit	$182,950

As shown above and in Exhibit 1, NetSolutions has gross profit of $182,950 in 2013.

Retailers, such as Best Buy, Sears Holding Corporation, and Walmart, and grocery store chains, such as Winn-Dixie Stores, Inc. and Kroger, use bar codes and optical scanners as part of their computerized inventory systems.

Income from Operations **Income from operations**, sometimes called **operating income**, is determined by subtracting operating expenses from gross profit. Operating expenses are normally classified as either selling expenses or administrative expenses.

Selling expenses are incurred directly in the selling of merchandise. Examples of selling expenses include sales salaries, store supplies used, depreciation of store equipment, delivery expense, and advertising.

Administrative expenses, sometimes called **general expenses**, are incurred in the administration or general operations of the business. Examples of administrative expenses include office salaries, depreciation of office equipment, and office supplies used.

Each selling and administrative expense may be reported separately as shown in Exhibit 1. However, many companies report selling, administrative, and operating expenses as single line items as shown below for NetSolutions.

IFRS IFRS

See Appendix D for more information

Gross profit		$182,950
Operating expenses:		
Selling expenses	$70,820	
Administrative expenses	34,890	
Total operating expenses		105,710
Income from operations		$ 77,240

Other Income and Expense Other income and expense items are not related to the primary operations of the business. **Other income** is revenue from sources other than the primary operating activity of a business. Examples of other income include income from interest, rent, and gains resulting from the sale of fixed assets. **Other expense** is an expense that cannot be traced directly to the normal operations of the business. Examples of other expenses include interest expense and losses from disposing of fixed assets.

Other income and other expense are offset against each other on the income statement. If the total of other income exceeds the total of other expense, the difference is added to income from operations to determine net income. If the reverse is true, the difference is subtracted from income from operations. The other income and expense items of NetSolutions are reported as shown below and in Exhibit 1.

Income from operations		$77,240
Other income and expense:		
Rent revenue	$ 600	
Interest expense	(2,440)	(1,840)
Net income		$75,400

Single-Step Income Statement

An alternate form of income statement is the **single-step income statement.** As shown in Exhibit 2, the income statement for NetSolutions deducts the total of all expenses *in one step* from the total of all revenues.

The single-step form emphasizes total revenues and total expenses in determining net income. A criticism of the single-step form is that gross profit and income from operations are not reported.

Statement of Owner's Equity

The statement of owner's equity for NetSolutions is shown in Exhibit 3. This statement is prepared in the same manner as for a service business.

Balance Sheet

The balance sheet may be presented with assets on the left-hand side and the liabilities and owner's equity on the right-hand side. This form of the balance sheet is called the **account form.** The balance sheet may also be presented in a downward sequence in

EXHIBIT 2

Single-Step Income Statement

NetSolutions
Income Statement
For the Year Ended December 31, 2013

Revenues:		
Net sales		$708,255
Rent revenue		600
Total revenues		$708,855
Expenses:		
Cost of merchandise sold	$525,305	
Selling expenses	70,820	
Administrative expenses	34,890	
Interest expense	2,440	
Total expenses		633,455
Net income		$ 75,400

EXHIBIT 3

Statement of Owner's Equity for Merchandising Business

NetSolutions
Statement of Owner's Equity
For the Year Ended December 31, 2013

Chris Clark, capital, January 1, 2013		$153,800
Net income for the year	$75,400	
Less withdrawals	18,000	
Increase in owner's equity		57,400
Chris Clark, capital, December 31, 2013		$211,200

three sections. This form of balance sheet is called the **report form.** The report form of balance sheet for NetSolutions is shown in Exhibit 4. In Exhibit 4, merchandise inventory is reported as a current asset and the current portion of the note payable of $5,000 is reported as a current liability.

EXHIBIT 4

Report Form of Balance Sheet

NetSolutions
Balance Sheet
December 31, 2013

Assets			
Current assets:			
Cash		$52,950	
Accounts receivable		91,080	
Merchandise inventory		62,150	
Office supplies		480	
Prepaid insurance		2,650	
Total current assets			$209,310
Property, plant, and equipment:			
Land		$20,000	
Store equipment	$27,100		
Less accumulated depreciation	5,700	21,400	
Office equipment	$15,570		
Less accumulated depreciation	4,720	10,850	
Total property, plant, and equipment			52,250
Total assets			$261,560
Liabilities			
Current liabilities:			
Accounts payable		$22,420	
Note payable (current portion)		5,000	
Salaries payable		1,140	
Unearned rent		1,800	
Total current liabilities			$ 30,360
Long-term liabilities:			
Note payable (final payment due 2023)			20,000
Total liabilities			$ 50,360
Owner's Equity			
Chris Clark, capital			211,200
Total liabilities and owner's equity			$261,560

Business Connection

H&R BLOCK VERSUS THE HOME DEPOT

H&R Block is a service business that primarily offers tax planning and preparation to its customers. The Home Depot is a large home improvement retailer. The differences in the operations of a service and merchandise business are illustrated in their income statements, as shown below.

H&R Block
Condensed Income Statement
For the Year Ending April 30, 2009
(in millions)

Revenue	$4,084
Operating expenses	3,245
Operating income	$ 839
Other expense (net)	28
Income before taxes	$ 811
Income taxes	326
Net income	$ 485

As discussed in a later chapter, corporations are subject to income taxes. Thus, the income statements of H&R Block and The Home Depot report "income taxes" as a deduction from "income before income taxes" in arriving at net income. This is in contrast to a proprietorship such as NetSolutions, which is not subject to income taxes.

The Home Depot
Condensed Income Statement
For the Year Ending February 1, 2009
(in millions)

Net sales	$71,288
Cost of merchandise sold	47,298
Gross profit	$23,990
Operating expenses	19,631
Operating income	$ 4,359
Other expense (net)	821
Income before taxes	$ 3,538
Income taxes	1,278
Net income	$ 2,260

OBJ. 3 Describe and illustrate the accounting for merchandise transactions including:
- sale of merchandise
- purchase of merchandise
- freight
- sales taxes and trade discounts
- dual nature of merchandising transactions

Merchandising Transactions

The prior section described and illustrated the financial statements of a merchandising business, **NetSolutions**. This section describes and illustrates the recording of merchandise transactions, including the use of a chart of accounts for a merchandising business.

Chart of Accounts for a Merchandising Business

The chart of accounts for a merchandising business should reflect the elements of the financial statements. The chart of accounts for NetSolutions is shown in Exhibit 5. The accounts related to merchandising transactions are shown in color.

As shown in Exhibit 5, NetSolutions' chart of accounts consists of three-digit account numbers. The first digit indicates the major financial statement classification (1 for assets, 2 for liabilities, and so on). The second digit indicates the subclassification (e.g., 11 for current assets, 12 for noncurrent assets). The third digit identifies the specific account (e.g., 110 for Cash, 123 for Store Equipment). Using a three-digit numbering system makes it easier to add new accounts as they are needed.

Sales Transactions

Merchandise transactions are recorded using the rules of debit and credit that we described and illustrated in Chapter 2. Exhibit 3, shown on page 55 of Chapter 2, summarizes these rules.

Special journals may be used, or transactions may be entered, recorded, and posted using a computerized accounting system. To simplify, a two-column general journal is used in this chapter.

EXHIBIT 5

Chart of Accounts for NetSolutions, a Merchandising Business

	Balance Sheet Accounts
100	Assets
110	Cash
112	Accounts Receivable
115	Merchandise Inventory
116	Office Supplies
117	Prepaid Insurance
120	Land
123	Store Equipment
124	Accumulated Depreciation—Store Equipment
125	Office Equipment
126	Accumulated Depreciation—Office Equipment
200	Liabilities
210	Accounts Payable
211	Salaries Payable
212	Unearned Rent
215	Notes Payable
300	Owner's Equity
310	Chris Clark, Capital
311	Chris Clark, Drawing
312	Income Summary

	Income Statement Accounts
400	Revenues
410	Sales
411	Sales Returns and Allowances
412	Sales Discounts
500	Costs and Expenses
510	Cost of Merchandise Sold
520	Sales Salaries Expense
521	Advertising Expense
522	Depreciation Expense—Store Equipment
523	Delivery Expense
529	Miscellaneous Selling Expense
530	Office Salaries Expense
531	Rent Expense
532	Depreciation Expense—Office Equipment
533	Insurance Expense
534	Office Supplies Expense
539	Misc. Administrative Expense
600	Other Income
610	Rent Revenue
700	Other Expense
710	Interest Expense

Cash Sales A business may sell merchandise for cash. Cash sales are normally entered (rung up) on a cash register and recorded in the accounts. To illustrate, assume that on January 3, NetSolutions sells merchandise for $1,800. These cash sales are recorded as follows:

Journal Page 25

Date		Description	Post. Ref.	Debit	Credit
2013 Jan.	3	Cash		1,800	
		Sales			1,800
		To record cash sales.			

Using the perpetual inventory system, the cost of merchandise sold and the decrease in merchandise inventory are also recorded. In this way, the merchandise inventory account indicates the amount of merchandise on hand (not sold).

To illustrate, assume that the cost of merchandise sold on January 3 is $1,200. The entry to record the cost of merchandise sold and the decrease in the merchandise inventory is as follows:

Jan.	3	Cost of Merchandise Sold		1,200	
		Merchandise Inventory			1,200
		To record the cost of merchandise sold.			

Sales may be made to customers using credit cards such as MasterCard or VISA. Such sales are recorded as cash sales. This is because these sales are normally processed by a clearing-house that contacts the bank that issued the card. The issuing bank then electronically transfers cash directly to the retailer's bank account.[2] Thus, the retailer normally receives cash within a few days of making the credit card sale.

If the customers in the preceding sales had used MasterCards to pay for their purchases, the sales would be recorded exactly as shown in the preceding entry. Any processing fees charged by the clearing-house or issuing bank are periodically recorded as an expense. This expense is normally reported on the income statement as an administrative expense. To illustrate, assume that NetSolutions paid credit card processing fees of $48 on January 31. These fees would be recorded as follows:

Jan.	31	Credit Card Expense		48	
		Cash			48
		To record service charges on credit card sales for the month.			

Instead of using MasterCard or VISA, a customer may use a credit card that is not issued by a bank. For example, a customer might use an American Express card. If the seller uses a clearing-house, the clearing-house will collect the receivable and transfer the cash to the retailer's bank account similar to the way it would have if the customer had used MasterCard or VISA. Large businesses, however, may not use a clearing-house. In such cases, nonbank credit card sales must first be reported to the card company before cash is received. Thus, a receivable is created with the nonbank credit card company. However, since most retailers use clearing-houses to process both bank and nonbank credit cards, all credit card sales will be recorded as cash sales.

A retailer may accept MasterCard or VISA but not American Express. Why? American Express Co.'s service fees are normally higher than MasterCard's or VISA's. As a result, some retailers choose not to accept American Express cards. The disadvantage of this practice is that the retailer may lose customers to competitors who do accept American Express cards.

Sales on Account A business may sell merchandise on account. The seller records such sales as a debit to Accounts Receivable and a credit to Sales. An example of an entry for a NetSolutions sale on account of $510 follows. The cost of merchandise sold was $280.

Jan.	12	Accounts Receivable—Sims Co.		510	
		Sales			510
		Invoice No. 7172.			
	12	Cost of Merchandise Sold		280	
		Merchandise Inventory			280
		Cost of merch. sold on Invoice No. 7172.			

Sales Discounts The terms of a sale are normally indicated on the **invoice** or bill that the seller sends to the buyer. An example of a sales invoice for NetSolutions is shown in Exhibit 6.

The terms for when payments for merchandise are to be made are called the **credit terms.** If payment is required on delivery, the terms are *cash* or *net cash.* Otherwise, the buyer is allowed an amount of time, known as the **credit period,** in which to pay.

The credit period usually begins with the date of the sale as shown on the invoice. If payment is due within a stated number of days after the invoice date, such as 30 days, the terms are *net 30 days.* These terms may be written as *n/30.*[3] If payment

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[2] CyberSource is one of the major credit card clearing-houses. For a more detailed description of how credit card sales are processed, see the following CyberSource Web page: **http://www.cybersource.com/products_and_services/global_payment_services/credit_card_processing/howitworks.xml.**

[3] The word *net* as used here does not have the usual meaning of a number after deductions have been subtracted, as in *net income.*

EXHIBIT 6

Invoice

NetSolutions
5101 Washington Ave.
Cincinnati, OH 45227-5101

106-8

Invoice

Made in U.S.A.

SOLD TO
Omega Technologies
1000 Matrix Blvd.
San Jose, CA. 95116-1000

CUSTOMER'S ORDER NO. & DATE
412 Jan. 4, 2013

DATE SHIPPED	**HOW SHIPPED AND ROUTE**	**TERMS**	**INVOICE DATE**
Jan. 7, 2013	US Express Trucking Co.	2/10, n/30	Jan. 7, 2013

FROM	**F.O.B.**
Cincinnati	Cincinnati

QUANTITY	**DESCRIPTION**	**UNIT PRICE**	**AMOUNT**
10	3COM Wireless PC Card	150.00	1,500.00

is due by the end of the month in which the sale was made, the terms are written as *n/eom.*

To encourage the buyer to pay before the end of the credit period, the seller may offer a discount. For example, a seller may offer a 2% discount if the buyer pays within 10 days of the invoice date. If the buyer does not take the discount, the total amount is due within 30 days. These terms are expressed as *2/10, n/30* and are read as *2% discount if paid within 10 days, net amount due within 30 days*. The credit terms of 2/10, n/30 are summarized in Exhibit 7, using the invoice in Exhibit 6.

Discounts taken by the buyer for early payment are recorded as sales discounts by the seller. Managers usually want to know the amount of the sales discounts for a period. For this reason, sales discounts are recorded in a separate sales discounts account, which is a *contra* (or *offsetting*) account to Sales.

To illustrate, assume that NetSolutions receives $1,470 on January 17 for the invoice shown in Exhibit 6. Since the invoice was paid within the discount period (10 days), the buyer deducted $30 ($1,500 × 2%) from the invoice amount. NetSolutions would record the receipt of the cash as follows:

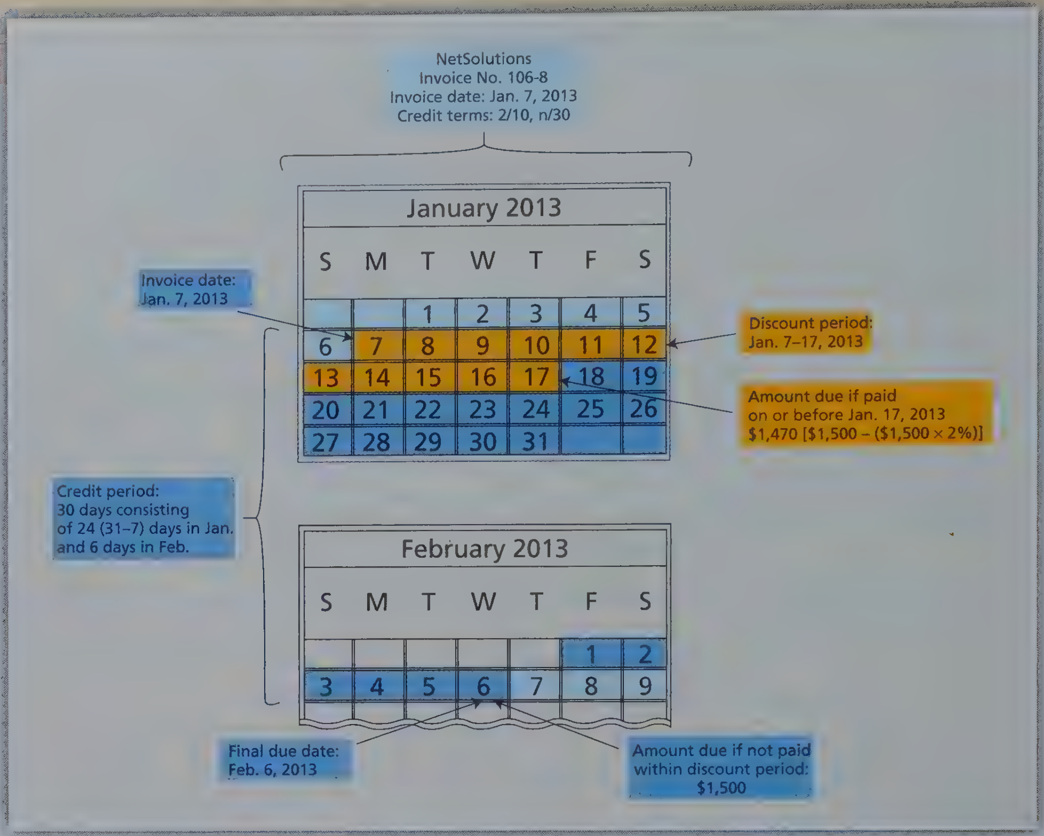
Jan.	17	Cash		1,470	
		Sales Discounts		30	
		Accounts Receivable—Omega Technologies			1,500
		Collection on Invoice No. 106-8, less 2% discount.			

Sales Returns and Allowances Merchandise sold may be returned to the seller (sales return). In other cases, the seller may reduce the initial selling price (sales allowance). This might occur if the merchandise is defective, damaged during shipment, or does not meet the buyer's expectations.

If the return or allowance is for a sale on account, the seller usually issues the buyer a **credit memorandum**, often called a **credit memo**. A credit memo authorizes

EXHIBIT 7

Credit Terms



NetSolutions
Invoice No. 106-8
Invoice date: Jan. 7, 2013
Credit terms: 2/10, n/30

Invoice date: Jan. 7, 2013

Discount period: Jan. 7–17, 2013

Amount due if paid on or before Jan. 17, 2013 $1,470 [$1,500 – ($1,500 × 2%)]

Credit period: 30 days consisting of 24 (31–7) days in Jan. and 6 days in Feb.

Final due date: Feb. 6, 2013

Amount due if not paid within discount period: $1,500

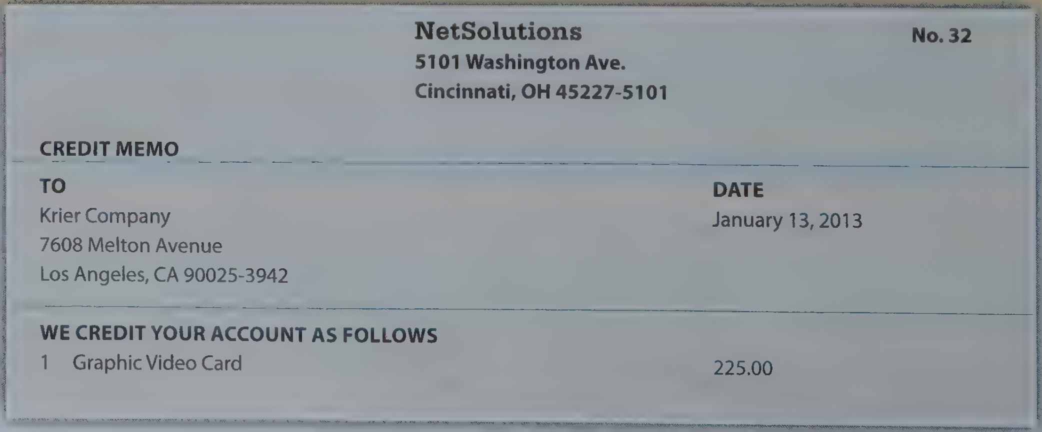
a credit to (decreases) the buyer's account receivable. A credit memo indicates the amount and reason for the credit. An example of a credit memo issued by NetSolutions is shown in Exhibit 8.

Like sales discounts, sales returns and allowances reduce sales revenue. Also, returns often result in additional shipping and handling expenses. Thus, managers usually want to know the amount of returns and allowances for a period. For this reason, sales returns and allowances are recorded in a separate sales returns and allowances account, which is a *contra* (or *offsetting*) account to Sales.

The seller debits Sales Returns and Allowances for the amount of the return or allowance. If the sale was on account, the seller credits Accounts Receivable. Using a perpetual inventory system, the seller must also debit (increase) Merchandise Inventory and decrease (credit) Cost of Merchandise Sold for the cost of the returned merchandise.

EXHIBIT 8

Credit Memo



NetSolutions
5101 Washington Ave.
Cincinnati, OH 45227-5101

No. 32

CREDIT MEMO

TO
Krier Company
7608 Melton Avenue
Los Angeles, CA 90025-3942

DATE
January 13, 2013

WE CREDIT YOUR ACCOUNT AS FOLLOWS

1	Graphic Video Card	225.00

To illustrate, the credit memo shown in Exhibit 8 is used. The selling price of the merchandise returned in Exhibit 8 is $225. Assuming that the cost of the merchandise returned is $140, the sales return and allowance would be recorded as follows:

Jan.	13	Sales Returns and Allowances		225	
		Accounts Receivable—Krier Company			225
		Credit Memo No. 32.			
	13	Merchandise Inventory		140	
		Cost of Merchandise Sold			140
		Cost of merchandise returned, Credit Memo No. 32.			

A buyer may pay for merchandise and then later return it. In this case, the seller may do one of the following:

1. Issue a credit that is applied against the buyer's other receivables.
2. Issue a cash refund.

If the credit is applied against the buyer's other receivables, the seller records the credit with entries similar to those shown above. If cash is refunded, the seller debits Sales Returns and Allowances and credits Cash.

Example Exercise 6-2 Sales Transactions

OBJ. 3

Journalize the following merchandise transactions:

a. Sold merchandise on account, $7,500 with terms 2/10, n/30. The cost of the merchandise sold was $5,625.
b. Received payment less the discount.

Follow My Example 6-2

a.	Accounts Receivable	7,500	
	Sales		7,500
	Cost of Merchandise Sold	5,625	
	Merchandise Inventory		5,625
b.	Cash	7,350	
	Sales Discounts	150	
	Accounts Receivable		7,500

Practice Exercises: **PE 6-2A, PE 6-2B**

Integrity, Objectivity, and Ethics in Business

THE CASE OF THE FRAUDULENT PRICE TAGS

One of the challenges for a retailer is policing its sales return policy. There are many ways in which customers can unethically or illegally abuse such policies. In one case, a couple was accused of attaching **Marshalls'** store price tags to cheaper merchandise bought or obtained elsewhere. The couple then returned the cheaper goods and received the substantially higher refund amount. Company security officials discovered the fraud and had the couple arrested after they had allegedly bilked the company for over $1 million.

Purchase Transactions

Under the perpetual inventory system, cash purchases of merchandise are recorded as follows:

Journal — Page 24

Date		Description	Post. Ref.	Debit	Credit
2013 Jan.	3	Merchandise Inventory		2,510	
		Cash			2,510
		Purchased inventory from Bowen Co.			

Purchases of merchandise on account are recorded as follows:

Jan.	4	Merchandise Inventory		9,250	
		Accounts Payable—Thomas Corporation			9,250
		Purchased inventory on account.			

Purchases Discounts A buyer may receive a discount from the seller (sales discount) for early payment of the amount owed. From the buyer's perspective, such discounts are called **purchases discounts**.

Purchases discounts taken by a buyer reduce the cost of the merchandise purchased. Even if the buyer has to borrow to pay within a discount period, it is normally to the buyer's advantage to do so. For this reason, accounting systems are normally designed so that all available discounts are taken.

To illustrate, assume that NetSolutions purchased merchandise from Alpha Technologies as follows:

Invoice Date	Invoice Amount	Terms
March 12	$3,000	2/10, n/30

The last day of the discount period is March 22 (March 12 + 10 days). Assume that in order to pay the invoice on March 22, NetSolutions borrows $2,940, which is $3,000 less the discount of $60 ($3,000 × 2%). If we also assume an annual interest rate of 6% and a 360-day year, the interest on the loan of $2,940 for the remaining 20 days of the credit period is $9.80 ($2,940 × 6% × 20/360).

The net savings to NetSolutions of taking the discount is $50.20, computed as follows:

Discount of 2% on $3,000	$60.00
Interest for 20 days at a rate of 6% on $2,940	9.80
Savings from taking the discount	$50.20

The savings can also be seen by comparing the interest rate on the money *saved* by taking the discount and the interest rate on the money *borrowed* to take the discount. The interest rate on the money saved in the prior example is estimated by converting 2% for 20 days to a yearly rate, as follows:

$$2\% \times \frac{360 \text{ days}}{20 \text{ days}} = 2\% \times 18 = 36\%$$

NetSolutions borrowed $2,940 at 6% to take the discount. If NetSolutions does not take the discount, it *pays* an estimated interest rate of 36% for using the $2,940 for the remaining 20 days of the credit period. Thus, buyers should normally take all available purchase discounts.

Under the perpetual inventory system, the buyer initially debits Merchandise Inventory for the amount of the invoice. When paying the invoice within the discount period, the buyer credits Merchandise Inventory for the amount of the discount. In this way, Merchandise Inventory shows the *net* cost to the buyer.

To illustrate, NetSolutions would record the Alpha Technologies invoice and its payment at the end of the discount period as follows:

Mar.	12	Merchandise Inventory		3,000	
		Accounts Payable—Alpha Technologies			3,000
	22	Accounts Payable—Alpha Technologies		3,000	
		Cash			2,940
		Merchandise Inventory			60

Assume that NetSolutions does not take the discount, but instead pays the invoice on April 11. In this case, NetSolutions would record the payment on April 11 as follows:

Apr.	11	Accounts Payable—Alpha Technologies		3,000	
		Cash			3,000

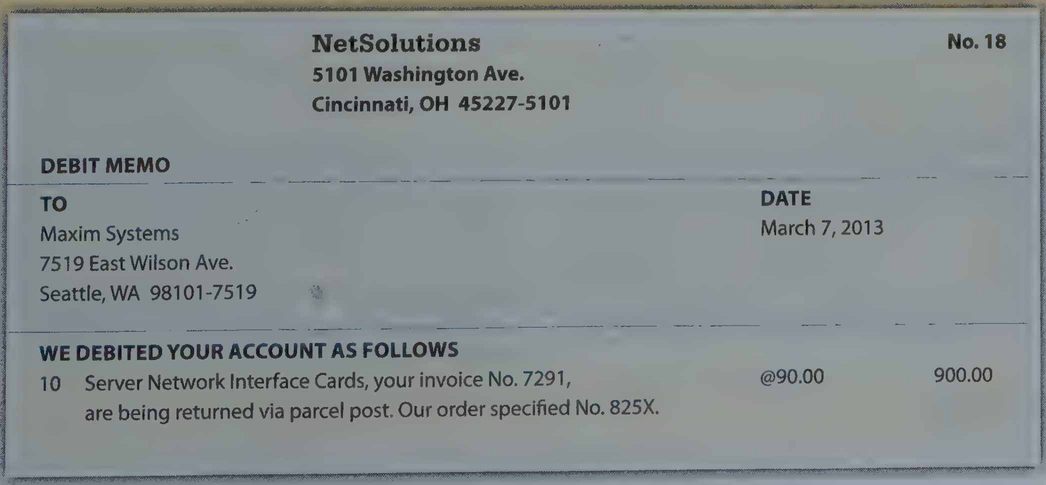
Purchases Returns and Allowances A buyer may receive an allowance for merchandise that is returned (purchases return) or a price allowance (purchases allowance) for damaged or defective merchandise. From a buyer's perspective, such sales returns and allowances are called **purchases returns and allowances**. In both cases, the buyer normally sends the seller a debit memorandum.

A **debit memorandum**, often called a **debit memo**, is shown in Exhibit 9. A debit memo informs the seller of the amount the buyer proposes to *debit* to the account payable due the seller. It also states the reasons for the return or the request for the price allowance.

The buyer may use the debit memo as the basis for recording the return or allowance or wait for approval from the seller (creditor). In either case, the buyer debits Accounts Payable and credits Merchandise Inventory.

EXHIBIT 9

Debit Memo



NetSolutions
5101 Washington Ave.
Cincinnati, OH 45227-5101

No. 18

DEBIT MEMO

TO
Maxim Systems
7519 East Wilson Ave.
Seattle, WA 98101-7519

DATE
March 7, 2013

WE DEBITED YOUR ACCOUNT AS FOLLOWS

10	Server Network Interface Cards, your invoice No. 7291, are being returned via parcel post. Our order specified No. 825X.	@90.00	900.00

To illustrate, NetSolutions records the return of the merchandise indicated in the debit memo in Exhibit 9 as follows:

Mar.	7	Accounts Payable—Maxim Systems		900	
		Merchandise Inventory			900
		Debit Memo No. 18.			

A buyer may return merchandise or be granted a price allowance before paying an invoice. In this case, the amount of the debit memo is deducted from the invoice. The amount is deducted before the purchase discount is computed.

To illustrate, assume the following data concerning a purchase of merchandise by NetSolutions on May 2:

May 2. Purchased $5,000 of merchandise on account from Delta Data Link, terms 2/10, n/30.
4. Returned $3,000 of the merchandise purchased on March 2.
12. Paid for the purchase of May 2 less the return and discount.

NetSolutions would record these transactions as follows:

May	2	Merchandise Inventory		5,000	
		Accounts Payable—Delta Data Link			5,000
		Purchased merchandise.			
	4	Accounts Payable—Delta Data Link		3,000	
		Merchandise Inventory			3,000
		Returned portion of merch. purchased.			
	12	Accounts Payable—Delta Data Link		2,000	
		Cash			1,960
		Merchandise Inventory			40
		Paid invoice [($5,000 – $3,000) × 2% = $40; $2,000 – $40 = $1,960].			

Example Exercise 6-3 Purchase Transactions

OBJ. 3

Rofles Company purchased merchandise on account from a supplier for $11,500, terms 2/10, n/30. Rofles Company returned $3,000 of the merchandise and received full credit.

a. If Rofles Company pays the invoice within the discount period, what is the amount of cash required for the payment?

b. Under a perpetual inventory system, what account is credited by Rofles Company to record the return?

Follow My Example 6-3

a. $8,330. Purchase of $11,500 less the return of $3,000 less the discount of $170 [($11,500 – $3,000) × 2%].

b. Merchandise Inventory

Practice Exercises: **PE 6-3A, PE 6-3B**

Freight

Purchases and sales of merchandise often involve freight. The terms of a sale indicate when ownership (title) of the merchandise passes from the seller to the buyer. This

point determines whether the buyer or the seller pays the freight costs.[4]

The ownership of the merchandise may pass to the buyer when the seller delivers the merchandise to the freight carrier. In this case, the terms are said to be **FOB (free on board) shipping point**. This term means that the buyer pays the freight costs from the shipping point to the final destination. Such costs are part of the buyer's total cost of purchasing inventory and are added to the cost of the inventory by debiting Merchandise Inventory.

Note:
The buyer bears the freight costs if the shipping terms are FOB shipping point.

To illustrate, assume that on June 10, NetSolutions purchased merchandise as follows:

June 10. Purchased merchandise from Magna Data, $900, terms FOB shipping point.
10. Paid freight of $50 on June 10 purchase from Magna Data.

NetSolutions would record these two transactions as follows:

June	10	Merchandise Inventory		900	
		Accounts Payable—Magna Data			900
		Purchased merchandise, terms FOB shipping point.			
	10	Merchandise Inventory		50	
		Cash			50
		Paid shipping cost on merchandise purchased.			

Sometimes FOB shipping point and FOB destination are expressed in terms of a specific location at which the title to the merchandise passes to the buyer. For example, if Toyota Motor Corporation's assembly plant in Osaka, Japan, sells automobiles to a dealer in Chicago, FOB shipping point is expressed as FOB Osaka. Likewise, FOB destination is expressed as FOB Chicago.

The ownership of the merchandise may pass to the buyer when the buyer receives the merchandise. In this case, the terms are said to be **FOB (free on board) destination**. This term means that the seller pays the freight costs from the shipping point to the buyer's final destination. When the seller pays the delivery charges, the seller debits Delivery Expense or Freight Out. Delivery Expense is reported on the seller's income statement as a selling expense.

Note:
The seller bears the freight costs if the shipping terms are FOB destination.

To illustrate, assume that NetSolutions sells merchandise as follows:

June 15. Sold merchandise to Kranz Company on account, $700, terms FOB destination. The cost of the merchandise sold is $480.
15. NetSolutions pays freight of $40 on the sale of June 15.

NetSolutions records the sale, the cost of the sale, and the freight cost as follows:

June	15	Accounts Receivable—Kranz Company		700	
		Sales			700
		Sold merchandise, terms FOB destination.			
	15	Cost of Merchandise Sold		480	
		Merchandise Inventory			480
		Recorded cost of merchandise sold to Kranz Company.			
	15	Delivery Expense		40	
		Cash			40
		Paid shipping cost on merch. sold.			

---

[4] The passage of title also determines whether the buyer or seller must pay other costs, such as the cost of insurance, while the merchandise is in transit.

The seller may prepay the freight, even though the terms are FOB shipping point. The seller will then add the freight to the invoice. The buyer debits Merchandise Inventory for the total amount of the invoice, including the freight. Any discount terms would not apply to the prepaid freight.

To illustrate, assume that NetSolutions sells merchandise as follows:

June 20. Sold merchandise to Planter Company on account, $800, terms FOB shipping point. NetSolutions paid freight of $45, which was added to the invoice. The cost of the merchandise sold is $360.

NetSolutions records the sale, the cost of the sale, and the freight as follows:

June	20	Accounts Receivable—Planter Company		800	
		Sales			800
		Sold merch., terms FOB shipping point.			
	20	Cost of Merchandise Sold		360	
		Merchandise Inventory			360
		Recorded cost of merchandise sold to Planter Company.			
	20	Accounts Receivable—Planter Company		45	
		Cash			45
		Prepaid shipping cost on merch. sold.			

Shipping terms, the passage of title, and whether the buyer or seller is to pay the freight costs are summarized in Exhibit 10.

EXHIBIT 10 **Freight Terms**

Example Exercise 6-4 Freight Terms

OBJ. 3

Determine the amount to be paid in full settlement of each of invoices (a) and (b), assuming that credit for returns and allowances was received prior to payment and that all invoices were paid within the discount period.

	Merchandise	Freight Paid by Seller	Freight Terms	Returns and Allowances
a.	$4,500	$200	FOB shipping point, 1/10, n/30	$ 800
b.	5,000	60	FOB destination, 2/10, n/30	2,500

Follow My Example 6-4

a. $3,863. Purchase of $4,500 less return of $800 less the discount of $37 [($4,500 – $800) × 1%] plus $200 of shipping.

b. $2,450. Purchase of $5,000 less return of $2,500 less the discount of $50 [($5,000 – $2,500) × 2%].

Practice Exercises: **PE 6-4A, PE 6-4B**

Summary: Recording Merchandise Inventory

Recording merchandise inventory transactions under the perpetual inventory system has been described and illustrated in the preceding sections. These transactions involved purchases, purchases discounts, purchases returns and allowances, freight, sales, and sales returns from customers. Exhibit 11 summarizes how these transactions are recorded in T account form.

EXHIBIT 11

Recording Merchandise Inventory

Merchandise Inventory			
Purchases of merchandise for sale	XXX	Purchases discounts	XXX
Freight for merchandise purchased FOB shipping point	XXX	Purchases returns and allowances	XXX
Merchandise returned from customer	XXX	Cost of merchandise sold	XXX

Cost of Merchandise Sold			
Cost of merchandise sold	XXX	Merchandise returned from customer	XXX

Sales Taxes and Trade Discounts

Sales of merchandise often involve sales taxes. Also, the seller may offer buyers trade discounts.

Sales Taxes Almost all states levy a tax on sales of merchandise.[5] The liability for the sales tax is incurred when the sale is made.

At the time of a cash sale, the seller collects the sales tax. When a sale is made on account, the seller charges the tax to the buyer by debiting Accounts Receivable. The seller credits the sales account for the amount of the sale and credits the tax to

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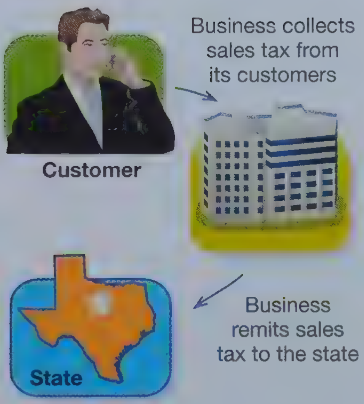
[5] Businesses that purchase merchandise for resale to others are normally exempt from paying sales taxes on their purchases. Only final buyers of merchandise normally pay sales taxes.

Sales Tax Payable. For example, the seller would record a sale of $100 on account, subject to a tax of 6%, as follows:



Aug.	12	Accounts Receivable—Lemon Co.		106	
		Sales			100
		Sales Tax Payable			6
		Invoice No. 339.			

On a regular basis, the seller pays to the taxing authority (state) the amount of the sales tax collected. The seller records such a payment as follows:

Sept.	15	Sales Tax Payable		2,900	
		Cash			2,900
		Payment for sales taxes collected during August.			

Business Connection

SALES TAXES

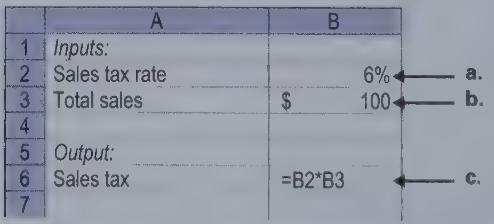
While there is no federal sales tax, most states have enacted state-wide sales taxes. In addition, many states allow counties and cities to collect a "local option" sales taxes. Delaware, Montana, New Hampshire, and Oregon have no state or local sales taxes. Tennessee (9.4%), California (9.15%), Washington (8.75%), and Louisiana (8.75%) have the highest average combined rates (including state and local option taxes). Several towns in Tuscaloosa County, Alabama, have the highest combined rates in the United States of 11%, while Chicago, Illinois, has the highest combined city rate of 10.25%.

What about companies that sell merchandise through the Internet? The general rule is that if the company ships merchandise to a customer in a state where the company does not have a physical location, no sales tax is due. For example, a customer in Montana who purchases merchandise online from a New York retailer (and no physical location in Montana) does not have to pay sales tax to either Montana or New York.

Source: The Sales Tax Clearinghouse at **www.thestc.com/FAQ.stm** (accessed May 6, 2010).

excel success

The calculation for sales tax can be accomplished within a spreadsheet. A spreadsheet is often used if there are sales from many different states with different sales tax rates. We will simplify by illustrating the calculation for only one state.



	A	B	
1	*Inputs:*		
2	Sales tax rate	6%	a.
3	Total sales	$ 100	b.
4			
5	*Output:*		
6	Sales tax	=B2*B3	c.
7			

The spreadsheet is developed with two inputs and one output. The sales tax rate is entered in cell B2 as .06, and then formatted as a percent. You can't simply type 6%, because that won't be interpreted as a number.

a. Insert the sales tax rate .06, and format as a percent, in B2.
b. Insert the total sales, and format as currency, in B3.
c. Insert the formula for the sales tax calculation in B6, =B2*B3. Note that Excel uses the asterisk (*) to denote multiplication.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Trade Discounts Wholesalers are companies that sell merchandise to other businesses rather than to the public. Many wholesalers publish sales catalogs. Rather than updating their catalogs, wholesalers may publish price updates. These updates may include large discounts from the catalog list prices. In addition, wholesalers often offer

special discounts to government agencies or businesses that order large quantities. Such discounts are called **trade discounts**.

Sellers and buyers do not normally record the list prices of merchandise and trade discounts in their accounts. For example, assume that an item has a list price of $1,000 and a 40% trade discount. The seller records the sale of the item at $600 [$1,000 less the trade discount of $400 ($1,000 × 40%)]. Likewise, the buyer records the purchase at $600.

Dual Nature of Merchandise Transactions

Each merchandising transaction affects a buyer and a seller. In the following illustration, the same transactions for a seller and buyer are recorded. In this example, the seller is Scully Company and the buyer is Burton Co.

Transaction	Scully Company (Seller)			Burton Co. (Buyer)		
July 1. Scully Company sold merchandise on account to Burton Co., $7,500, terms FOB shipping point, n/45. The cost of the merchandise sold was $4,500.	Accounts Receivable—Burton Co.	7,500		Merchandise Inventory	7,500	
	Sales		7,500	Accounts Payable—Scully Co.		7,500
	Cost of Merchandise Sold	4,500				
	Merchandise Inventory		4,500			
July 2. Burton Co. paid freight of $150 on July 1 purchase from Scully Company.	No journal entry.			Merchandise Inventory	150	
				Cash		150
July 5. Scully Company sold merchandise on account to Burton Co., $5,000, terms FOB destination, n/30. The cost of the merchandise sold was $3,500.	Accounts Receivable—Burton Co.	5,000		Merchandise Inventory	5,000	
	Sales		5,000	Accounts Payable—Scully Co.		5,000
	Cost of Merchandise Sold	3,500				
	Merchandise Inventory		3,500			
July 7. Scully Company paid freight of $250 for delivery of merchandise sold to Burton Co. on July 5.	Delivery Expense	250		No journal entry.		
	Cash		250			
July 13. Scully Company issued Burton Co. a credit memo for merchandise returned, $1,000. The merchandise had been purchased by Burton Co. on account on July 5. The cost of the merchandise returned was $700.	Sales Returns and Allowances	1,000		Accounts Payable—Scully Co.	1,000	
	Accounts Receivable—Burton Co.		1,000	Merchandise Inventory		1,000
	Merchandise Inventory	700				
	Cost of Merchandise Sold		700			
July 15. Scully Company received payment from Burton Co. for purchase of July 5.	Cash	4,000		Accounts Payable—Scully Co.	4,000	
	Accounts Receivable—Burton Co.		4,000	Cash		4,000
July 18. Scully Company sold merchandise on account to Burton Co., $12,000, terms FOB shipping point, 2/10, n/eom. Scully Company prepaid freight of $500, which was added to the invoice. The cost of the merchandise sold was $7,200.	Accounts Receivable—Burton Co.	12,000		Merchandise Inventory	12,500	
	Sales		12,000	Accounts Payable—Scully Co.		12,500
	Accounts Receivable—Burton Co.	500				
	Cash		500			
	Cost of Merchandise Sold	7,200				
	Merchandise Inventory		7,200			
July 28. Scully Company received payment from Burton Co. for purchase of July 18, less discount (2% × $12,000).	Cash	12,260		Accounts Payable—Scully Co.	12,500	
	Sales Discounts	240		Merchandise Inventory		240
	Accounts Receivable—Burton Co.		12,500	Cash		12,260

Example Exercise 6-5 Transactions for Buyer and Seller

OBJ. 3

Sievert Co. sold merchandise to Bray Co. on account, $11,500, terms 2/15, n/30. The cost of the merchandise sold is $6,900. Sievert Co. issued a credit memo for $900 for merchandise returned and later received the amount due within the discount period. The cost of the merchandise returned was $540. Journalize Sievert Co.'s and Bray Co.'s entries for the payment of the amount due.

Follow My Example 6-5

Sievert Co. journal entries:

Cash ($11,500 – $900 – $212)	10,388	
Sales Discounts [($11,500 – $900) × 2%]	212	
Accounts Receivable—Bray Co. ($11,500 – $900)		10,600

Bray Co. journal entries:

Accounts Payable—Sievert Co. ($11,500 – $900)	10,600	
Merchandise Inventory [($11,500 – $900) × 2%]		212
Cash ($11,500 – $900 – $212)		10,388

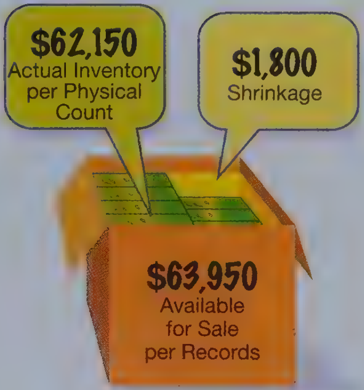
Practice Exercises: **PE 6-5A, PE 6-5B**

The Adjusting and Closing Process

OBJ. 4 Describe the adjusting and closing process for a merchandising business.

Thus far, the chart of accounts and the recording of transactions for a merchandising business have been described and illustrated. The preparation of financial statements for **NetSolutions** has also been illustrated. In the remainder of this chapter, the adjusting and closing process for a merchandising business will be described. In this discussion, the focus will be on the elements of the accounting cycle that differ from those of a service business.

Adjusting Entry for Inventory Shrinkage



Under the perpetual inventory system, the merchandise inventory account is continually updated for purchase and sales transactions. As a result, the balance of the merchandise inventory account is the amount of merchandise available for sale at that point in time. However, retailers normally experience some loss of inventory due to shoplifting, employee theft, or errors. Thus, the physical inventory on hand at the end of the accounting period is usually less than the balance of Merchandise Inventory. This difference is called **inventory shrinkage** or **inventory shortage**.

To illustrate, NetSolutions' inventory records indicate the following on December 31, 2013:

	Dec. 31, 2013
Account balance of Merchandise Inventory	$63,950
Physical merchandise inventory on hand	62,150
Inventory shrinkage	$ 1,800

At the end of the accounting period, inventory shrinkage is recorded by the following adjusting entry:

		Adjusting Entry			
Dec.	31	Cost of Merchandise Sold		1,800	
		Merchandise Inventory			1,800
		Inventory shrinkage ($63,950 – $62,150).			

After the preceding entry is recorded, the balance of Merchandise Inventory agrees with the physical inventory on hand at the end of the period. Since inventory shrinkage cannot be totally eliminated, it is considered a normal cost of operations. If, however, the amount of the shrinkage is unusually large, it may be disclosed separately on the income statement. In such cases, the shrinkage may be recorded in a separate account, such as Loss from Merchandise Inventory Shrinkage.[6]

Example Exercise 6-6 Inventory Shrinkage

OBJ. 4

Pulmonary Company's perpetual inventory records indicate that $382,800 of merchandise should be on hand on March 31, 2012. The physical inventory indicates that $371,250 of merchandise is actually on hand. Journalize the adjusting entry for the inventory shrinkage for Pulmonary Company for the year ended March 31, 2012. Assume that the inventory shrinkage is a normal amount.

Follow My Example 6-6

Mar. 31	Cost of Merchandise Sold	11,550	
	Merchandise Inventory		11,550
	Inventory shrinkage ($382,800 – $371,250).		

Practice Exercises: **PE 6-6A, PE 6-6B**

Closing Entries

The closing entries for a merchandising business are similar to those for a service business. The four closing entries for a merchandising business are as follows:

1. Debit each temporary account with a credit balance, such as Sales, for its balance and credit Income Summary.
2. Credit each temporary account with a debit balance, such as the various expenses, and credit Income Summary. Since Sales Returns and Allowances, Sales Discounts, and Cost of Merchandise Sold are temporary accounts with debit balances, they are credited for their balances.
3. Debit Income Summary for the amount of its balance (net income) and credit the owner's capital account. The accounts debited and credited are reversed if there is a net loss.
4. Debit the owner's capital account for the balance of the drawing account and credit the drawing account.

The four closing entries for NetSolutions are shown at the top of the following page.

NetSolutions' income summary account after the closing entries have been posted is as follows:

Account *Income Summary* Account No. *312*

Date		Item	Post. Ref.	Debit	Credit	Balance	
						Debit	Credit
2013 Dec.	31	Revenues	29		720,785		720,785
	31	Expenses	29	645,385			75,400
	31	Net income	29	75,400		—	—

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[6] The adjusting process for a merchandising business may be aided by preparing an end-of-period spreadsheet (work sheet). An end-of-period spreadsheet (work sheet) for a merchandising business is described and illustrated in an online appendix at **www.cengage.com/accounting/reeve**.

After the closing entries are posted to the accounts, a post-closing trial balance is prepared. The only accounts that should appear on the post-closing trial balance are the asset, contra asset, liability, and owner's capital accounts with balances. These are the same accounts that appear on the end-of-period balance sheet. If the two totals of the trial balance columns are not equal, an error has occurred that must be found and corrected.

Journal *Page 29*

Date		Item	Post. Ref.	Debit	Credit
		Closing Entries			
2013 Dec.	31	Sales	410	720,185	
		Rent Revenue	610	600	
		Income Summary	312		720,785
	31	Income Summary	312	645,385	
		Sales Returns and Allowances	411		6,140
		Sales Discounts	412		5,790
		Cost of Merchandise Sold	510		525,305
		Sales Salaries Expense	520		53,430
		Advertising Expense	521		10,860
		Depr. Expense—Store Equipment	522		3,100
		Delivery Expense	523		2,800
		Miscellaneous Selling Expense	529		630
		Office Salaries Expense	530		21,020
		Rent Expense	531		8,100
		Depr. Expense—Office Equipment	532		2,490
		Insurance Expense	533		1,910
		Office Supplies Expense	534		610
		Misc. Administrative Expense	539		760
		Interest Expense	710		2,440
	31	Income Summary	312	75,400	
		Chris Clark, Capital	310		75,400
	31	Chris Clark, Capital	310	18,000	
		Chris Clark, Drawing	311		18,000

FAI

OBJ 5 Describe and illustrate the use of the ratio of net sales to assets in evaluating a company's operating performance.

Financial Analysis and Interpretation: Ratio of Net Sales to Assets

The **ratio of net sales to assets** measures how effectively a business is using its assets to generate sales. A high ratio indicates an effective use of assets. The assets used in computing the ratio may be the total assets at the end of the year, the average of the total assets at the beginning and end of the year, or the average of the monthly assets. For our purposes, the average of the total assets at the beginning and end of the year is used.

The ratio of net sales to assets is computed as follows:

$$\text{Ratio of Net Sales to Assets} = \frac{\text{Net Sales}}{\text{Average Total Assets}}$$

To illustrate the use of this ratio, the following data (in millions) were taken from the annual reports of Dollar Tree, Inc.:

	For Years Ended	
	January 31, 2009	**February 2, 2008**
Total revenues (net sales)	$4,645	$4,243
Total assets:		
Beginning of year	1,788	1,873
End of year	2,036	1,788

The ratios of net sales to assets for each year are as follows:

	For Years Ended	
	January 31, 2009	**February 2, 2008**
Ratio of net sales to assets	2.43	2.32
	$4,645/[($1,788 + $2,036)/2]	$4,243/[($1,873 + $1,788)/2]

Based on the preceding ratios, Dollar Tree improved its ratio of net sales to assets from 2.32 in 2008 to 2.43 in 2009. Thus, Dollar Tree improved the utilization of its assets to generate sales in 2009.

Using the ratio of net sales to assets for comparisons to competitors and with industry averages could also be beneficial in interpreting Dollar Tree's use of its assets. For example, the following data (in millions) were taken from the annual reports of **Dollar General Corporation** for the year ended January 30, 2009:

	For Year Ended January 30, 2009
Total revenues (net sales)	$10,458
Total assets:	
Beginning of year	8,656
End of year	8,889

Dollar General's ratio of net sales to assets for 2009 is as follows:

	For Year Ended January 30, 2009
Ratio of net sales to assets	1.19
	$10,458/[($8,656 + $8,889)/2]

Comparing Dollar General's 2009 ratio of 1.19 to Dollar Tree's 2009 ratio of 2.43 implies Dollar Tree is using its assets more efficiently than Dollar General.

Example Exercise 6-7 Ratio of Net Sales to Assets

OBJ. 5

The following financial statement data for the years ending December 31, 2012 and 2011, for Gilbert Company are shown below.

	2012	2011
Net sales	$1,305,000	$962,500
Total assets:		
Beginning of year	840,000	700,000
End of year	900,000	840,000

a. Determine the ratio of net sales to assets for 2012 and 2011.

b. Does the change in the current ratio from 2011 to 2012 indicate a favorable or an unfavorable trend?

Follow My Example 6-7

a.

	2012	2011
Ratio of net sales to assets	1.50	1.25
	$1,305,000/[($840,000 + $900,000)/2]	$962,500/[($840,000 + $700,000)/2]

b. The change from 1.25 to 1.50 indicates a favorable trend in using assets to generate sales.

Practice Exercises: **PE 6-7A, PE 6-7B**

Integrity, Objectivity, and Ethics in Business

THE COST OF EMPLOYEE THEFT

One survey reported that the 22 largest U.S. retail store chains have lost over $6 billion to shoplifting and employee theft. The stores apprehended over 900,000 shoplifters and dishonest employees and recovered more than $182 million from these thieves. Approximately 1 out of every 30 employees was apprehended for theft from his or her employer. Each dishonest employee stole approximately 7 times the amount stolen by shoplifters ($969 vs. $136).

Source: Jack L. Hayes International, 21st Annual Retail Theft Survey, 2009.

APPENDIX

The Periodic Inventory System

Throughout this chapter, the perpetual inventory system was used to record purchases and sales of merchandise. Not all merchandise businesses, however, use the perpetual inventory system. For example, small merchandise businesses, such as a local hardware store, may use a manual accounting system. A manual perpetual inventory system is time consuming and costly to maintain. In this case, the periodic inventory system may be used.

Cost of Merchandise Sold Using the Periodic Inventory System

In the periodic inventory system, sales are recorded in the same manner as in the perpetual inventory system. However, cost of merchandise sold is not recorded on the date of sale. Instead, cost of merchandise sold is determined at the end of the period as shown in Exhibit 12 for **NetSolutions**.

EXHIBIT 12

Determining Cost of Merchandise Sold Using the Periodic System

Merchandise inventory, January 1, 2013			$ 59,700
Purchases		$521,980	
Less: Purchases returns and allowances	$9,100		
Purchases discounts	2,525	11,625	
Net purchases		$510,355	
Add freight in		17,400	
Cost of merchandise purchased			527,755
Merchandise available for sale			$587,455
Less merchandise inventory, December 31, 2013			62,150
Cost of merchandise sold			$525,305

Chart of Accounts Under the Periodic Inventory System

The chart of accounts under a periodic inventory system is shown in Exhibit 13. The accounts used to record transactions under the periodic inventory system are highlighted in Exhibit 13.

EXHIBIT 13

Chart of Accounts Under the Periodic Inventory System

Balance Sheet Accounts	
100 Assets	
110	Cash
111	Notes Receivable
112	Accounts Receivable
115	Merchandise Inventory
116	Office Supplies
117	Prepaid Insurance
120	Land
123	Store Equipment
124	Accumulated Depreciation—Store Equipment
125	Office Equipment
126	Accumulated Depreciation—Office Equipment
200 Liabilities	
210	Accounts Payable
211	Salaries Payable
212	Unearned Rent
215	Notes Payable
300 Owner's Equity	
310	Chris Clark, Capital
311	Chris Clark, Drawing
312	Income Summary

Income Statement Accounts	
400 Revenues	
410	Sales
411	Sales Returns and Allowances
412	Sales Discounts
500 Costs and Expenses	
510	Purchases
511	Purchases Returns and Allowances
512	Purchases Discounts
513	Freight In
520	Sales Salaries Expense
521	Advertising Expense
522	Depreciation Expense—Store Equipment
523	Delivery Expense
529	Miscellaneous Selling Expense
530	Office Salaries Expense
531	Rent Expense
532	Depreciation Expense—Office Equipment
533	Insurance Expense
534	Office Supplies Expense
539	Misc. Administrative Expense
600 Other Income	
610	Rent Revenue
700 Other Expense	
710	Interest Expense

Recording Merchandise Transactions Under the Periodic Inventory System

Using the periodic inventory system, purchases of inventory are not recorded in the merchandise inventory account. Instead, purchases, purchases discounts, and purchases returns and allowances accounts are used. In addition, the sales of merchandise are not recorded in the inventory account. Thus, there is no detailed record of the amount of inventory on hand at any given time. At the end of the period, a physical count of merchandise inventory on hand is taken. This physical count is used to determine the cost of merchandise sold as shown in Exhibit 12.

The use of purchases, purchases discounts, purchases returns and allowances, and freight in accounts are described below.

Purchases Purchases of inventory are recorded in a purchases account rather than in the merchandise inventory account. Purchases is debited for the invoice amount of a purchase.

Purchases Discounts Purchases discounts are normally recorded in a separate purchases discounts account. The balance of the purchases discounts account is reported as a deduction from Purchases for the period. Thus, Purchases Discounts is a contra (or offsetting) account to Purchases.

Purchases Returns and Allowances Purchases returns and allowances are recorded in a similar manner as purchases discounts. A separate purchases returns and allowances account is used to record returns and allowances. Purchases returns and allowances are reported as a deduction from Purchases for the period. Thus, Purchases Returns and Allowances is a contra (or offsetting) account to Purchases.

Freight In When merchandise is purchased FOB shipping point, the buyer pays for the freight. Under the periodic inventory system, freight paid when purchasing merchandise FOB shipping point is debited to Freight In, Transportation In, or a similar account.

The preceding periodic inventory accounts and their effect on the cost of merchandise purchased are summarized below.

Account	Entry to Increase	Normal Balance	Effect on Cost of Merchandise Purchased
Purchases	Debit	Debit	Increases
Purchases Discounts	Credit	Credit	Decreases
Purchases Returns and Allowances	Credit	Credit	Decreases
Freight In	Debit	Debit	Increases

Exhibit 14 illustrates the recording of merchandise transactions using the periodic system. As a review, Exhibit 14 also illustrates how each transaction would have been recorded using the perpetual system.

EXHIBIT 14 Transactions Using the Periodic and Perpetual Inventory Systems

Transaction	Periodic Inventory System			Perpetual Inventory System		
June 5. Purchased $30,000 of merchandise on account, terms 2/10, n/30.	Purchases Accounts Payable	30,000	 30,000	Merchandise Inventory Accounts Payable	30,000	 30,000
June 8. Returned merchandise purchased on account on June 5, $500.	Accounts Payable Purchases Returns and Allowances	500	 500	Accounts Payable Merchandise Inventory	500	 500
June 15. Paid for purchase of June 5, less return of $500 and discount of $590 [($30,000 – $500) × 2%].	Accounts Payable Cash Purchases Discounts	29,500	 28,910 590	Accounts Payable Cash Merchandise Inventory	29,500	 28,910 590
June 18. Sold merchandise on account, $12,500, 1/10, n/30. The cost of the merchandise sold was $9,000.	Accounts Receivable Sales	12,500	 12,500	Accounts Receivable Sales Cost of Merchandise Sold Merchandise Inventory	12,500 9,000	 12,500 9,000
June 21. Received merchandise returned on account, $4,000. The cost of the merchandise returned was $2,800.	Sales Returns and Allowances Accounts Receivable	4,000	 4,000	Sales Returns and Allowances Accounts Receivable Merchandise Inventory Cost of Merchandise Sold	4,000 2,800	 4,000 2,800
June 22. Purchased merchandise, $15,000, terms FOB shipping point, 2/15, n/30, with prepaid freight of $750 added to the invoice.	Purchases Freight In Accounts Payable	15,000 750	 15,750	Merchandise Inventory Accounts Payable	15,750	 15,750
June 28. Received $8,415 as payment on account from June 18 sale less return of June 21 and less discount of $85 [($12,500 – $4,000) × 1%].	Cash Sales Discounts Accounts Receivable	8,415 85	 8,500	Cash Sales Discounts Accounts Receivable	8,415 85	 8,500
June 29. Received $19,600 from cash sales. The cost of the merchandise sold was $13,800.	Cash Sales	19,600	 19,600	Cash Sales Cost of Merchandise Sold Merchandise Inventory	19,600 13,800	 19,600 13,800

Adjusting Process Under the Periodic Inventory System

The adjusting process is the same under the periodic and perpetual inventory systems except for the inventory shrinkage adjustment. The ending merchandise inventory is determined by a physical count under both systems.

Under the perpetual inventory system, the ending inventory physical count is compared to the balance of Merchandise Inventory. The difference is the amount of inventory shrinkage. The inventory shrinkage is then recorded as a debit to Cost of Merchandise Sold and a credit to Merchandise Inventory.

Under the periodic inventory system, the merchandise inventory account is not kept up to date for purchases and sales. As a result, the inventory shrinkage cannot be directly determined. Instead, any inventory shrinkage is included indirectly in the computation of cost of merchandise sold as shown in Exhibit 12. This is a major disadvantage of the periodic inventory system. That is, under the periodic inventory system, inventory shrinkage is not separately determined.

Financial Statements Under the Periodic Inventory System

The financial statements are similar under the perpetual and periodic inventory systems. When the multiple-step format of income statement is used, cost of merchandise sold may be reported as shown in Exhibit 12.

Closing Entries Under the Periodic Inventory System

The closing entries differ in the periodic inventory system in that there is no cost of merchandise sold account to close to Income Summary. Instead, the purchases, purchases discounts, purchases returns and allowances, and freight in accounts are closed to Income Summary. In addition, the merchandise inventory account is adjusted to the end-of-period physical inventory count during the closing process.

The four closing entries under the periodic inventory system are as follows:

1. Debit each temporary account with a credit balance, such as Sales, for its balance and credit Income Summary. Since Purchases Discounts and Purchases Returns and Allowances are temporary accounts with credit balances, they are debited for their balances. In addition, Merchandise Inventory is debited for its end-of-period balance based on the end-of-period physical inventory.
2. Credit each temporary account with a debit balance, such as the various expenses, and debit Income Summary. Since Sales Returns and Allowances, Sales Discounts, Purchases, and Freight In are temporary accounts with debit balances, they are credited for their balances. In addition, Merchandise Inventory is credited for its balance as of the beginning of the period.
3. Debit Income Summary for the amount of its balance (net income) and credit the owner's capital account. The accounts debited and credited are reversed if there is a net loss.
4. Debit the owner's capital account for the balance of the drawing account and credit the drawing account.

The four closing entries for NetSolutions under the periodic inventory system are shown on the next page.

Journal

Date		Item	Post. Ref.	Debit	Credit
2013		Closing Entries			
Dec.	31	Merchandise Inventory	115	62,150	
		Sales	410	720,185	
		Purchases Returns and Allowances	511	9,100	
		Purchases Discounts	512	2,525	
		Rent Revenue	610	600	
		Income Summary	312		794,560
	31	Income Summary	312	719,160	
		Merchandise Inventory	115		59,700
		Sales Returns and Allowances	411		6,140
		Sales Discounts	412		5,790
		Purchases	510		521,980
		Freight In	513		17,400
		Sales Salaries Expense	520		53,430
		Advertising Expense	521		10,860
		Depreciation Expense—Store Equipment	522		3,100
		Delivery Expense	523		2,800
		Miscellaneous Selling Expense	529		630
		Office Salaries Expense	530		21,020
		Rent Expense	531		8,100
		Depreciation Expense—Office Equipment	532		2,490
		Insurance Expense	533		1,910
		Office Supplies Expense	534		610
		Miscellaneous Administrative Expense	539		760
		Interest Expense	710		2,440
	31	Income Summary	312	75,400	
		Chris Clark, Capital	310		75,400
	31	Chris Clark, Capital	310	18,000	
		Chris Clark, Drawing	311		18,000

In the first closing entry, Merchandise Inventory is debited for $62,150. This is the ending physical inventory count on December 31, 2013. In the second closing entry, Merchandise Inventory is credited for its January 1, 2013, balance of $59,700. In this way, the closing entries highlight the importance of the beginning and ending balances of Merchandise Inventory in determining cost of merchandise sold, as shown in Exhibit 12. After the closing entries are posted, Merchandise Inventory will have a balance of $62,150. This is the amount reported on the December 31, 2013, balance sheet.

In the preceding closing entries, the periodic accounts are highlighted in color. Under the perpetual inventory system, the highlighted periodic inventory accounts are replaced by the cost of merchandise sold account.

At a Glance 6

OBJ. 1 Distinguish between the activities and financial statements of service and merchandising businesses.

Key Points Merchandising businesses purchase merchandise for selling to customers.

On a merchandising business's income statement, revenue from selling merchandise is reported as sales. The cost of the merchandise sold is subtracted from sales to arrive at gross profit. The operating expenses are subtracted from gross profit to arrive at net income. Merchandise inventory, which is merchandise not sold, is reported as a current asset on the balance sheet.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe how the activities of a service and a merchandising business differ.		
• Describe the differences between the income statements of a service and a merchandising business.		
• Compute gross profit.	EE6-1	PE6-1A, 6-1B
• Describe how merchandise inventory is reported on the balance sheet.		

OBJ. 2 Describe and illustrate the financial statements of a merchandising business.

Key Points The multiple-step income statement of a merchandiser reports sales, sales returns and allowances, sales discounts, and net sales. The cost of the merchandise sold is subtracted from net sales to determine the gross profit. Operating income is determined by subtracting selling and administrative expenses from gross profit. Net income is determined by adding or subtracting the net of other income and expense. The income statement may also be reported in a single-step form.

The statement of owner's equity is similar to that for a service business.

The balance sheet reports merchandise inventory at the end of the period as a current asset.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare a multiple-step income statement for a merchandising business.		
• Prepare a single-step income statement.		
• Prepare a statement of owner's equity for a merchandising business.		
• Prepare a balance sheet for a merchandising business.		

OBJ. 3 Describe and illustrate the accounting for merchandise transactions including:

- sale of merchandise
- purchase of merchandise
- freight
- sales taxes and trade discounts
- dual nature of merchandising transactions

Key Points The chart of accounts for a merchandising business (NetSolutions) is shown in Exhibit 5. Sales of merchandise for cash or on account are recorded as sales. The cost of merchandise sold and the reduction in merchandise inventory are also recorded at the time of sale. Discounts for early payment of sales on account are recorded as sales discounts. Price adjustments and returned merchandise are recorded as sales returns and allowances.

Purchases of merchandise for cash or on account are recorded as merchandise inventory. Discounts for early payment of purchases on account are recorded as purchases discounts. Price adjustments or returned merchandise are recorded as purchases returns and allowances.

When merchandise is shipped FOB shipping point, the buyer pays the freight and debits Merchandise Inventory. When merchandise is shipped FOB destination, the seller pays the freight and debits Delivery Expense or Freight Out.

The liability for sales tax is incurred when the sale is made and is recorded by the seller as a credit to the sales tax payable account. Trade discounts are discounts off the list price of merchandise.

Each merchandising transaction affects a buyer and a seller.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Prepare journal entries to record sales of merchandise for cash or using a credit card.		
• Prepare journal entries to record sales of merchandise on account.	**EE6-2**	**PE6-2A, 6-2B**
• Prepare journal entries to record sales discounts and sales returns and allowances.	**EE6-2**	**PE6-2A, 6-2B**
• Prepare journal entries to record the purchase of merchandise for cash.		
• Prepare journal entries to record the purchase of merchandise on account.	**EE6-3**	**PE6-3A, 6-3B**
• Prepare journal entries to record purchases discounts and purchases returns and allowances.	**EE6-3**	**PE6-3A, 6-3B**
• Prepare journal entries for freight from the point of view of the buyer and seller.		
• Determine the total cost of the purchase of merchandise under differing freight terms.	**EE6-4**	**PE6-4A, 6-4B**
• Prepare journal entries for the collection and payment of sales taxes by the seller.		
• Determine the cost of merchandise purchased when a trade discount is offered by the seller.		
• Record the same merchandise transactions for the buyer and seller.	**EE6-5**	**PE6-5A, 6-5B**

OBJ. 4 Describe the adjusting and closing process for a merchandising business.

Key Points The normal adjusting entry for inventory shrinkage is to debit Cost of Merchandise Sold and credit Merchandise Inventory.

The closing entries for a merchandising business are similar to those for a service business except that the cost of merchandise sold, sales discounts, and sales returns and allowances accounts are also closed to Income Summary.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Prepare the adjusting journal entry for inventory shrinkage.	**EE6-6**	**PE6-6A, 6-6B**
• Prepare the closing entries for a merchandising business.		

OBJ. 5

Describe and illustrate the use of the ratio of net sales to assets in evaluating a company's operating performance.

Key Points The ratio of net sales to assets measures how effectively a business is using its assets to generate sales. A high ratio indicates an effective use of assets. Using the average of the total assets at the beginning and end of the year, the ratio is computed as follows:

$$\text{Ratio of Net Sales to Assets} = \frac{\text{Net Sales}}{\text{Average Total Assets}}$$

Learning Outcomes	Example Exercises	Practice Exercises
• Interpret a high ratio of net sales to assets.		
• Compute the ratio of net sales to assets.	EE6-7	PE6-7A, 6-7B

Key Terms

account form (262)
administrative expenses (general expenses) (261)
cost of merchandise sold (258)
credit memorandum (credit memo) (267)
credit period (266)
credit terms (266)
debit memorandum (debit memo) (271)
FOB (free on board) destination (273)
FOB (free on board) shipping point (273)
gross profit (258)
income from operations (operating income) (261)
inventory shrinkage (inventory shortage) (278)
invoice (266)
merchandise inventory (258)
multiple-step income statement (259)
net sales (261)
other expense (262)
other income (262)
periodic inventory system (261)
perpetual inventory system (261)
purchases discounts (270)
purchases returns and allowances (271)
ratio of net sales to assets (280)
report form (263)
sales (260)
sales discounts (260)
sales returns and allowances (260)
selling expenses (261)
single-step income statement (262)
trade discounts (277)

Illustrative Problem

The following transactions were completed by Montrose Company during May of the current year. Montrose Company uses a perpetual inventory system.

May 3. Purchased merchandise on account from Floyd Co., $4,000, terms FOB shipping point, 2/10, n/30, with prepaid freight of $120 added to the invoice.
5. Purchased merchandise on account from Kramer Co., $8,500, terms FOB destination, 1/10, n/30.
6. Sold merchandise on account to C. F. Howell Co., list price $4,000, trade discount 30%, terms 2/10, n/30. The cost of the merchandise sold was $1,125.
8. Purchased office supplies for cash, $150.
10. Returned merchandise purchased on May 5 from Kramer Co., $1,300.
13. Paid Floyd Co. on account for purchase of May 3, less discount.

May 14. Purchased merchandise for cash, $10,500.

15. Paid Kramer Co. on account for purchase of May 5, less return of May 10 and discount.

16. Received cash on account from sale of May 6 to C. F. Howell Co., less discount.

19. Sold merchandise on MasterCard credit cards, $2,450. The cost of the merchandise sold was $980.

22. Sold merchandise on account to Comer Co., $3,480, terms 2/10, n/30. The cost of the merchandise sold was $1,400.

24. Sold merchandise for cash, $4,350. The cost of the merchandise sold was $1,750.

25. Received merchandise returned by Comer Co. from sale on May 22, $1,480. The cost of the returned merchandise was $600.

31. Paid a service processing fee of $140 for MasterCard sales.

Instructions

1. Journalize the preceding transactions.
2. Journalize the adjusting entry for merchandise inventory shrinkage, $3,750.

Solution

1.	May	3	Merchandise Inventory	4,120	
			Accounts Payable—Floyd Co.		4,120
		5	Merchandise Inventory	8,500	
			Accounts Payable—Kramer Co.		8,500
		6	Accounts Receivable—C. F. Howell Co.	2,800	
			Sales		2,800
			[$4,000 – (30% × $4,000)]		
		6	Cost of Merchandise Sold	1,125	
			Merchandise Inventory		1,125
		8	Office Supplies	150	
			Cash		150
		10	Accounts Payable—Kramer Co.	1,300	
			Merchandise Inventory		1,300
		13	Accounts Payable—Floyd Co.	4,120	
			Merchandise Inventory		80
			Cash		4,040
			[$4,000 – (2% × $4,000) + $120]		
		14	Merchandise Inventory	10,500	
			Cash		10,500
		15	Accounts Payable—Kramer Co.	7,200	
			Merchandise Inventory		72
			Cash		7,128
			[($8,500 – $1,300) × 1% = $72; $8,500 – $1,300 – $72 = $7,128]		
		16	Cash	2,744	
			Sales Discounts	56	
			Accounts Receivable—C. F. Howell Co.		2,800
		19	Cash	2,450	
			Sales		2,450
		19	Cost of Merchandise Sold	980	
			Merchandise Inventory		980
		22	Accounts Receivable—Comer Co.	3,480	
			Sales		3,480
		22	Cost of Merchandise Sold	1,400	
			Merchandise Inventory		1,400
		24	Cash	4,350	
			Sales		4,350

	May	24	Cost of Merchandise Sold	1,750	
			Merchandise Inventory		1,750
		25	Sales Returns and Allowances	1,480	
			Accounts Receivable—Comer Co.		1,480
		25	Merchandise Inventory	600	
			Cost of Merchandise Sold		600
		31	Credit Card Expense	140	
			Cash		140
2.	May	31	Cost of Merchandise Sold	3,750	
			Merchandise Inventory		3,750
			Inventory shrinkage.		

Discussion Questions

1. What distinguishes a merchandising business from a service business?
2. Can a business earn a gross profit but incur a net loss? Explain.
3. Name at least three accounts that would normally appear in the chart of accounts of a merchandising business but would not appear in the chart of accounts of a service business.
4. How are sales to customers using MasterCard and VISA recorded?
5. The credit period during which the buyer of merchandise is allowed to pay usually begins with what date?
6. What is the meaning of (a) 1/15, n/60; (b) n/30; (c) n/eom?
7. What is the nature of (a) a credit memo issued by the seller of merchandise, (b) a debit memo issued by the buyer of merchandise?
8. Who bears the freight when the terms of sale are (a) FOB shipping point, (b) FOB destination?
9. Mountain Gear Inc., which uses a perpetual inventory system, experienced a normal inventory shrinkage of $21,950. What accounts would be debited and credited to record the adjustment for the inventory shrinkage at the end of the accounting period?
10. Assume that Mountain Gear Inc. in Discussion Question 9 experienced an abnormal inventory shrinkage of $263,750. Mountain Gear Inc. has decided to record the abnormal inventory shrinkage so that it would be separately disclosed on the income statement. What account would be debited for the abnormal inventory shrinkage?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 1 **EE 6-1** *p. 259*

PE 6-1A Gross profit

During the current year, merchandise is sold for $275,000 cash and $990,000 on account. The cost of the merchandise sold is $950,000. What is the amount of the gross profit?

OBJ. 1 **EE 6-1** *p. 259*

PE 6-1B Gross profit

During the current year, merchandise is sold for $40,000 cash and $415,000 on account. The cost of the merchandise sold is $360,000. What is the amount of the gross profit?

OBJ. 3 **EE 6-2** *p. 269*

PE 6-2A Sales transactions

Journalize the following merchandise transactions:

a. Sold merchandise on account, $29,000 with terms 2/10, n/30. The cost of the merchandise sold was $21,750.

b. Received payment less the discount.

OBJ. 3 **EE 6-2** *p. 269*

PE 6-2B Sales transactions

Journalize the following merchandise transactions:

a. Sold merchandise on account, $60,000 with terms 1/10, n/30. The cost of the merchandise sold was $40,000.

b. Received payment less the discount.

OBJ. 3 **EE 6-3** *p. 272*

PE 6-3A Purchase transactions

MR Tile Company purchased merchandise on account from a supplier for $9,000, terms 2/10, n/30. MR Tile Company returned $1,500 of the merchandise and received full credit.

a. If MR Tile Company pays the invoice within the discount period, what is the amount of cash required for the payment?

b. Under a perpetual inventory system, what account is credited by MR Tile Company to record the return?

OBJ. 3 **EE 6-3** *p. 272*

PE 6-3B Purchase transactions

Piedmont Company purchased merchandise on account from a supplier for $30,000, terms 1/10, n/30. Piedmont Company returned $4,000 of the merchandise and received full credit.

a. If Piedmont Company pays the invoice within the discount period, what is the amount of cash required for the payment?

b. Under a perpetual inventory system, what account is debited by Piedmont Company to record the return?

OBJ. 3 **EE 6-4** *p. 275*

PE 6-4A Freight terms

Determine the amount to be paid in full settlement of each of invoices (a) and (b), assuming that credit for returns and allowances was received prior to payment and that all invoices were paid within the discount period.

Learning Objectives *Example Exercises*

	Merchandise	Freight Paid by Seller	Freight Terms	Returns and Allowances
a.	$120,000	$5,000	FOB shipping point, 1/10, n/30	$15,000
b.	90,000	1,000	FOB destination, 2/10, n/30	2,000

OBJ. 3 **EE 6-4** *p. 275*

PE 6-4B Freight terms

Determine the amount to be paid in full settlement of each of invoices (a) and (b), assuming that credit for returns and allowances was received prior to payment and that all invoices were paid within the discount period.

	Merchandise	Freight Paid by Seller	Freight Terms	Returns and Allowances
a.	$20,000	$500	FOB destination, 1/10, n/30	$2,000
b.	18,000	250	FOB shipping point, 2/10, n/30	1,000

OBJ. 3 **EE 6-5** *p. 278*

PE 6-5A Transactions for buyer and seller

Storall Co. sold merchandise to Bunting Co. on account, $8,000, terms 2/15, n/30. The cost of the merchandise sold is $3,000. Storall Co. issued a credit memo for $1,000 for merchandise returned and later received the amount due within the discount period. The cost of the merchandise returned was $400. Journalize Storall Co.'s and Bunting Co.'s entries for the payment of the amount due.

OBJ. 3 **EE 6-5** *p. 278*

PE 6-5B Transactions for buyer and seller

SPA Co. sold merchandise to Boyd Co. on account, $25,000, terms FOB shipping point, 2/10, n/30. The cost of the merchandise sold is $16,000. SPA Co. paid freight of $675 and later received the amount due within the discount period. Journalize SPA Co.'s and Boyd Co.'s entries for the payment of the amount due.

OBJ. 4 **EE 6-6** *p. 279*

PE 6-6A Inventory shrinkage

House of Clean Company's perpetual inventory records indicate that $375,000 of merchandise should be on hand on June 30, 2012. The physical inventory indicates that $366,500 of merchandise is actually on hand. Journalize the adjusting entry for the inventory shrinkage for House of Clean Company for the year ended June 30, 2012. Assume that the inventory shrinkage is a normal amount.

OBJ. 4 **EE 6-6** *p. 279*

PE 6-6B Inventory shrinkage

Zurich Company's perpetual inventory records indicate that $1,380,000 of merchandise should be on hand on August 31, 2012. The physical inventory indicates that $1,315,900 of merchandise is actually on hand. Journalize the adjusting entry for the inventory shrinkage for Zurich Company for the year ended August 31, 2012. Assume that the inventory shrinkage is a normal amount.

OBJ. 5 **EE 6-7** *p. 281*

FAI

PE 6-7A Ratio of net sales to assets

The following financial statement data for years ending December 31 for Foodworks Company are shown below.

	2012	2011
Net sales	$880,000	$787,500
Total assets:		
Beginning of year	500,000	375,000
End of year	600,000	500,000

a. Determine the ratio of net sales to assets for 2012 and 2011.

b. Does the change in the ratio of net sales to assets from 2011 to 2012 indicate a favorable or an unfavorable trend?

Learning Objectives *Example Exercises*

OBJ. 5 EE 6-7 *p. 281*

FAI

PE 6-7B Ratio of net sales to assets

The following financial Statement data for years ending December 31 for Beading Company are shown below.

	2012	2011
Net sales	$675,000	$475,000
Total assets:		
Beginning of year	200,000	180,000
End of year	250,000	200,000

a. Determine the ratio of net sales to assets for 2012 and 2011.

b. Does the change in the ratio of net sales to assets from 2011 to 2012 indicate a favorable or an unfavorable trend?

Exercises

OBJ. 1

EX 6-1 Determining gross profit

During the current year, merchandise is sold for $775,000. The cost of the merchandise sold is $426,250.

a. What is the amount of the gross profit?

b. Compute the gross profit percentage (gross profit divided by sales).

c. Will the income statement necessarily report a net income? Explain.

OBJ. 1

EX 6-2 Determining cost of merchandise sold

For the year ended February 28, 2009, Best Buy reported revenue of $45,015 million. Its gross profit was $10,998 million. What was the amount of Best Buy's cost of merchandise sold?

OBJ. 2

EX 6-3 Income statement for merchandiser

For the fiscal year, sales were $6,750,000, sales discounts were $120,000, sales returns and allowances were $90,000, and the cost of merchandise sold was $4,000,000.

a. What was the amount of net sales?

b. What was the amount of gross profit?

c. If total operating expenses were $1,200,000, could you determine net income?

OBJ. 2

EX 6-4 Income statement for merchandiser

The following expenses were incurred by a merchandising business during the year. In which expense section of the income statement should each be reported: (a) selling, (b) administrative, or (c) other?

1. Advertising expense
2. Depreciation expense on store equipment
3. Insurance expense on office equipment
4. Interest expense on notes payable
5. Rent expense on office building
6. Salaries of office personnel
7. Salary of sales manager
8. Sales supplies used

OBJ. 2

✓ Net income: $1,075,000

EX 6-5 Single-step income statement

Summary operating data for Heartland Company during the current year ended November 30, 2012, are as follows: cost of merchandise sold, $2,500,000; administrative expenses, $300,000; interest expense, $20,000; rent revenue, $95,000; net sales, $4,200,000; and selling expenses, $400,000. Prepare a single-step income statement.

OBJ. 2

EX 6-6 Multiple-step income statement

Identify the errors in the following income statement:

Keepsakes Company
Income Statement
For the Year Ended February 29, 2012

Revenue from sales:			
Sales		$7,200,000	
Add: Sales returns and allowances	$275,000		
Sales discounts	130,000	405,000	
Gross sales			$7,605,000
Cost of merchandise sold			4,075,000
Income from operations			$3,530,000
Expenses:			
Selling expenses		$ 950,000	
Administrative expenses		475,000	
Delivery expense		125,000	
Total expenses			1,550,000
			$1,980,000
Other expense:			
Interest revenue			30,000
Gross profit			$1,950,000

OBJ. 2

✔ a. $30,000
✔ h. $515,000

EX 6-7 Determining amounts for items omitted from income statement

Two items are omitted in each of the following four lists of income statement data. Determine the amounts of the missing items, identifying them by letter.

Sales	$300,000	$600,000	$850,000	$ (g)
Sales returns and allowances	(a)	30,000	(e)	10,000
Sales discounts	20,000	18,000	70,000	25,000
Net sales	250,000	(c)	775,000	(h)
Cost of merchandise sold	(b)	330,000	(f)	400,000
Gross profit	100,000	(d)	300,000	115,000

OBJ. 2

✔ a. Net income: $370,000

EX 6-8 Multiple-step income statement

On December 31, 2012, the balances of the accounts appearing in the ledger of Warm Place Furnishings Company, a furniture wholesaler, are as follows:

Administrative Expenses	$ 250,000	Rhonda Sipes, Capital	$ 741,000
Building	1,025,000	Rhonda Sipes, Drawing	50,000
Cash	97,000	Salaries Payable	6,000
Cost of Merchandise Sold	1,700,000	Sales	3,000,000
Interest Expense	30,000	Sales Discounts	40,000
Merchandise Inventory	260,000	Sales Returns and Allowances	160,000
Notes Payable	400,000	Selling Expenses	450,000
Office Supplies	20,000	Store Supplies	65,000

a. Prepare a multiple-step income statement for the year ended December 31, 2012.

b. Compare the major advantages and disadvantages of the multiple-step and single-step forms of income statements.

OBJ. 3

EX 6-9 Chart of accounts

Do-Right Paints Co. is a newly organized business with a list of accounts arranged in alphabetical order below.

Accounts Payable
Accounts Receivable
Accumulated Depreciation—Office Equipment
Accumulated Depreciation—Store Equipment
Advertising Expense
Cash
Cost of Merchandise Sold
Delivery Expense
Depreciation Expense—Office Equipment
Depreciation Expense—Store Equipment
Income Summary
Insurance Expense
Interest Expense
Jamie Ricardi, Capital
Jamie Ricardi, Drawing
Land
Merchandise Inventory
Miscellaneous Administrative Expense
Miscellaneous Selling Expense
Notes Payable
Office Equipment
Office Salaries Expense
Office Supplies
Office Supplies Expense
Prepaid Insurance
Rent Expense
Salaries Payable
Sales
Sales Discounts
Sales Returns and Allowances
Sales Salaries Expense
Store Equipment
Store Supplies
Store Supplies Expense

Construct a chart of accounts, assigning account numbers and arranging the accounts in balance sheet and income statement order, as illustrated in Exhibit 5. Each account number is three digits: the first digit is to indicate the major classification ("1" for assets, and so on); the second digit is to indicate the subclassification ("11" for current assets, and so on); and the third digit is to identify the specific account ("110" for Cash, "112" for Accounts Receivable, "114" for Merchandise Inventory, "115" for Store Supplies, and so on).

OBJ. 3

EX 6-10 Sales-related transactions, including the use of credit cards

Journalize the entries for the following transactions:

a. Sold merchandise for cash, $30,000. The cost of the merchandise sold was $18,000.

b. Sold merchandise on account, $120,000. The cost of the merchandise sold was $72,000.

c. Sold merchandise to customers who used MasterCard and VISA, $100,000. The cost of the merchandise sold was $70,000.

d. Sold merchandise to customers who used American Express, $45,000. The cost of the merchandise sold was $27,000.

e. Received an invoice from National Credit Co. for $9,000, representing a service fee paid for processing MasterCard, VISA, and American Express sales.

OBJ. 3

EX 6-11 Sales returns and allowances

During the year, sales returns and allowances totaled $80,000. The cost of the merchandise returned was $48,000. The accountant recorded all the returns and allowances by debiting the sales account and crediting Cost of Merchandise Sold for $80,000.

Was the accountant's method of recording returns acceptable? Explain. In your explanation, include the advantages of using a sales returns and allowances account.

OBJ. 3

EX 6-12 Sales-related transactions

After the amount due on a sale of $40,000, terms 2/10, n/eom, is received from a customer within the discount period, the seller consents to the return of the entire shipment. The cost of the merchandise returned was $24,000. (a) What is the amount of the refund owed to the customer? (b) Journalize the entries made by the seller to record the return and the refund.

OBJ. 3

EX 6-13 Sales-related transactions

The debits and credits for three related transactions are presented in the following T accounts. Describe each transaction.

Cash

(5)	32,340		

Accounts Receivable

(1)	35,000	(3)	2,000
		(5)	33,000

Merchandise Inventory

(4)	1,200	(2)	21,000

Sales

		(1)	35,000

Sales Discounts

(5)	660		

Sales Returns and Allowances

(3)	2,000		

Cost of Merchandise Sold

(2)	21,000	(4)	1,200

OBJ. 3

✔ d. $18,240

EX 6-14 Sales-related transactions

Merchandise is sold on account to a customer for $18,000, terms FOB shipping point, 2/10, n/30. The seller paid the freight of $600. Determine the following: (a) amount of the sale, (b) amount debited to Accounts Receivable, (c) amount of the discount for early payment, and (d) amount due within the discount period.

OBJ. 3

EX 6-15 Purchase-related transaction

Bergquist Company purchased merchandise on account from a supplier for $12,000, terms 1/10, n/30. Bergquist Company returned $3,000 of the merchandise and received full credit.

a. If Bergquist Company pays the invoice within the discount period, what is the amount of cash required for the payment?

b. Under a perpetual inventory system, what account is credited by Bergquist Company to record the return?

OBJ. 3

EX 6-16 Purchase-related transactions

A retailer is considering the purchase of 100 units of a specific item from either of two suppliers. Their offers are as follows:

E: $300 a unit, total of $30,000, 1/10, n/30, no charge for freight.

F: $295 a unit, total of $29,500, 2/10, n/30, plus freight of $375.

Which of the two offers, E or F, yields the lower price?

OBJ. 3

EX 6-17 Purchase-related transactions

The debits and credits from four related transactions are presented in the following T accounts. Describe each transaction.

Cash

		(2)	400
		(4)	11,760

Merchandise Inventory

(1)	15,000	(3)	3,000
(2)	400	(4)	240

Accounts Payable

(3)	3,000	(1)	15,000
(4)	12,000		

OBJ. 3

✔ (c) Cash, cr. $31,360

EX 6-18 Purchase-related transactions

Mayn Co., a women's clothing store, purchased $36,000 of merchandise from a supplier on account, terms FOB destination, 2/10, n/30. Mayn Co. returned $4,000 of the merchandise, receiving a credit memo, and then paid the amount due within the discount period. Journalize Mayn Co.'s entries to record (a) the purchase, (b) the merchandise return, and (c) the payment.

OBJ. 3

✓ (e) Cash, dr. $2,400

EX 6-19 Purchase-related transactions

Journalize entries for the following related transactions of Blue Moon Company:

a. Purchased $60,000 of merchandise from Sierra Co. on account, terms 1/10, n/30.

b. Paid the amount owed on the invoice within the discount period.

c. Discovered that $10,000 of the merchandise was defective and returned items, receiving credit.

d. Purchased $7,500 of merchandise from Sierra Co. on account, terms n/30.

e. Received a check for the balance owed from the return in (c), after deducting for the purchase in (d).

OBJ. 3

✓ a. $35,000

EX 6-20 Determining amounts to be paid on invoices

Determine the amount to be paid in full settlement of each of the following invoices, assuming that credit for returns and allowances was received prior to payment and that all invoices were paid within the discount period.

	Merchandise	Freight Paid by Seller		Returns and Allowances
a.	$36,000	—	FOB destination, n/30	$1,000
b.	10,000	$375	FOB shipping point, 2/10, n/30	1,200
c.	8,250	—	FOB shipping point, 1/10, n/30	750
d.	4,000	200	FOB shipping point, 2/10, n/30	500
e.	8,500	—	FOB destination, 1/10, n/30	—

OBJ. 3

✓c. $29,960

EX 6-21 Sales tax

A sale of merchandise on account for $28,000 is subject to a 7% sales tax. (a) Should the sales tax be recorded at the time of sale or when payment is received? (b) What is the amount of the sale? (c) What is the amount debited to Accounts Receivable? (d) What is the title of the account to which the $1,960 ($28,000 × 7%) is credited?

OBJ. 3

EX 6-22 Sales tax transactions

Journalize the entries to record the following selected transactions:

a. Sold $12,900 of merchandise on account, subject to a sales tax of 4%. The cost of the merchandise sold was $7,800.

b. Paid $32,750 to the state sales tax department for taxes collected.

OBJ. 3

EX 6-23 Sales-related transactions

Skycrest Co., a furniture wholesaler, sells merchandise to Boyle Co. on account, $45,000, terms 2/10, n/30. The cost of the merchandise sold is $27,000. Skycrest Co. issues a credit memo for $9,000 for merchandise returned and subsequently receives the amount due within the discount period. The cost of the merchandise returned is $5,400. Journalize Skycrest Co.'s entries for (a) the sale, including the cost of the merchandise sold, (b) the credit memo, including the cost of the returned merchandise, and (c) the receipt of the check for the amount due from Boyle Co.

OBJ. 3

EX 6-24 Purchase-related transactions

Based on the data presented in Exercise 6-23, journalize Boyle Co.'s entries for (a) the purchase, (b) the return of the merchandise for credit, and (c) the payment of the invoice within the discount period.

OBJ. 3

EX 6-25 Normal balances of merchandise accounts

What is the normal balance of the following accounts: (a) Cost of Merchandise Sold, (b) Delivery Expense, (c) Merchandise Inventory, (d) Sales, (e) Sales Discounts, (f) Sales Returns and Allowances, (g) Sales Tax Payable?

OBJ. 4

EX 6-26 Adjusting entry for merchandise inventory shrinkage

Old Faithful Tile Co.'s perpetual inventory records indicate that $715,950 of merchandise should be on hand on December 31, 2012. The physical inventory indicates that $693,675 of merchandise is actually on hand. Journalize the adjusting entry for the inventory shrinkage for Old Faithful Tile Co. for the year ended December 31, 2012.

OBJ. 4

EX 6-27 Closing the accounts of a merchandiser

From the following list, identify the accounts that should be closed to Income Summary at the end of the fiscal year under a perpetual inventory system: (a) Accounts Payable, (b) Advertising Expense, (c) Cost of Merchandise Sold, (d) Merchandise Inventory, (e) Sales, (f) Sales Discounts, (g) Sales Returns and Allowances, (h) Supplies, (i) Supplies Expense, (j) Tyler Royce, Drawing, (k) Wages Payable.

OBJ. 4

EX 6-28 Closing entries; net income

Based on the data presented in Exercise 6-8, journalize the closing entries.

OBJ. 4

EX 6-29 Closing entries

On August 31, 2012, the balances of the accounts appearing in the ledger of Wood Interiors Company, a furniture wholesaler, are as follows:

Accumulated Depr.—Building	$142,000	Notes Payable	$ 25,000
Administrative Expenses	90,000	Sales	800,000
Building	400,000	Sales Discounts	18,000
Cash	55,000	Sales Returns and Allow.	12,000
Cost of Merchandise Sold	350,000	Sales Tax Payable	3,000
Interest Expense	1,000	Selling Expenses	150,000
Kate Archer, Capital	172,000	Store Supplies	15,000
Kate Archer, Drawing	5,000	Store Supplies Expenses	20,000
Merchandise Inventory	26,000		

Prepare the August 31, 2012, closing entries for Wood Interiors Company.

OBJ. 5

EX 6-30 Ratio of net sales to assets

The Home Depot reported the following data (in millions) in its financial statements:

	2009	2008
Net sales	$71,288	$77,349
Total assets at the end of the year	41,164	44,324
Total assets at the beginning of the year	44,324	52,263

a. Determine the ratio of net sales to assets for The Home Depot for 2009 and 2008. Round to two decimal places.

b. What conclusions can be drawn from these ratios concerning the trend in the ability of The Home Depot to effectively use its assets to generate sales?

OBJ. 5

EX 6-31 Ratio of net sales to assets

Kroger, a national supermarket chain, reported the following data (in millions) in its financial statements for the year ended January 31, 2009:

Total revenue	$76,000
Total assets at end of year	23,211
Total assets at beginning of year	22,299

a. Compute the ratio of net sales to assets for 2009. Round to two decimal places.

b. Tiffany & Co. is a large North American retailer of jewelry, with a ratio of net sales to assets of 0.95. Why would Tiffany's ratio of net sales to assets be lower than that of Kroger?

Appendix

EX 6-32 Identify items missing in determining cost of merchandise sold

For (a) through (d), identify the items designated by "X" and "Y."

a. Purchases − (X + Y) = Net purchases.

b. Net purchases + X = Cost of merchandise purchased.

c. Merchandise inventory (beginning) + Cost of merchandise purchased = X.

d. Merchandise available for sale − X = Cost of merchandise sold.

✔ a. Cost of merchandise sold, $1,948,500

Appendix

EX 6-33 Cost of merchandise sold and related items

The following data were extracted from the accounting records of Danhof Company for the year ended June 30, 2012:

Merchandise inventory, July 1, 2011	$ 250,000
Merchandise inventory, June 30, 2012	325,000
Purchases	2,100,000
Purchases returns and allowances	50,000
Purchases discounts	39,000
Sales	3,250,000
Freight in	12,500

a. Prepare the cost of merchandise sold section of the income statement for the year ended June 30, 2012, using the periodic inventory system.

b. Determine the gross profit to be reported on the income statement for the year ended June 30, 2012.

c. Would gross profit be different if the perpetual inventory system was used instead of the periodic inventory system?

Appendix

EX 6-34 Cost of merchandise sold

Based on the following data, determine the cost of merchandise sold for April:

Merchandise inventory, April 1	$ 15,000
Merchandise inventory, April 30	28,000
Purchases	290,000
Purchases returns and allowances	10,000
Purchases discounts	5,800
Freight in	4,200

Appendix

EX 6-35 Cost of merchandise sold

Based on the following data, determine the cost of merchandise sold for March:

Merchandise inventory, March 1	$100,000
Merchandise inventory, March 31	90,000
Purchases	800,000
Purchases returns and allowances	15,000
Purchases discounts	12,000
Freight in	8,000

✔ Correct cost of merchandise sold, $885,000

Appendix

EX 6-36 Cost of merchandise sold

Identify the errors in the following schedule of cost of merchandise sold for the current year ended March 31, 2012:

Cost of merchandise sold:			
Merchandise inventory, March 31, 2012			$ 75,000
Purchases		$900,000	
Plus: Purchases returns and allowances	$18,000		
Purchases discounts	12,000	30,000	
Gross purchases		$930,000	
Less freight in		10,000	
Cost of merchandise purchased			920,000
Merchandise available for sale			$995,000
Less merchandise inventory, April 1, 2011			80,000
Cost of merchandise sold			$915,000

Appendix
EX 6-37 Rules of debit and credit for periodic inventory accounts

Complete the following table by indicating for (a) through (g) whether the proper answer is debit or credit.

Account	Increase	Decrease	Normal Balance
Purchases	(a)	credit	(b)
Purchases Discounts	(c)	debit	credit
Purchases Returns and Allowances	(d)	debit	(e)
Freight in	(f)	(g)	debit

Appendix
EX 6-38 Journal entries using the periodic inventory system

The following selected transactions were completed by Burton Company during July of the current year. Burton Company uses the periodic inventory system.

July 2. Purchased $24,000 of merchandise on account, FOB shipping point, terms 2/15, n/30.
5. Paid freight of $500 on the July 2 purchase.
6. Returned $4,000 of the merchandise purchased on July 2.
13. Sold merchandise on account, $15,000, FOB destination, 1/10, n/30. The cost of merchandise sold was $9,000.
15. Paid freight of $100 for the merchandise sold on July 13.
17. Paid for the purchase of July 2 less the return and discount.
23. Received payment on account for the sale of July 13 less the discount.

Journalize the entries to record the transactions of Burton Company.

Appendix
Ex 6-39 Journal entries using perpetual inventory system

Using the data shown in Exercise 6-38, journalize the entries for the transactions assuming that Burton Company uses the perpetual inventory system.

Appendix
Ex 6-40 Closing entries using periodic inventory system

Pyramid Company is a small rug retailer owned and operated by Rosemary Endecott. After the accounts have been adjusted on January 31, the following selected account balances were taken from the ledger:

Advertising Expense	$ 40,000
Depreciation Expense	15,000
Freight In	8,000
Merchandise Inventory, January 1	250,000
Merchandise Inventory, January 31	300,000
Miscellaneous Expense	29,000
Purchases	750,000
Purchases Discounts	12,000
Purchases Returns and Allowances	8,000
Rosemary Endecott, Drawing	60,000
Salaries Expense	175,000
Sales	1,200,000
Sales Discounts	20,000
Sales Returns and Allowances	30,000

Journalize the closing entries on January 31.

Problems Series A

OBJ. 1, 2

✔ 1. Net income: $775,000

PR 6-1A Multiple-step income statement and report form of balance sheet

The following selected accounts and their current balances appear in the ledger of Carpet Land Co. for the fiscal year ended October 31, 2012:

Cash	$ 274,000
Accounts Receivable	425,000
Merchandise Inventory	525,000
Office Supplies	12,000
Prepaid Insurance	9,000
Office Equipment	315,000
Accumulated Depreciation—Office Equipment	187,000
Store Equipment	900,000
Accumulated Depreciation—Store Equipment	293,000
Accounts Payable	193,000
Salaries Payable	12,000
Note Payable (final payment due 2037)	400,000
Maggie Young, Capital	750,000
Maggie Young, Drawing	150,000
Sales	6,155,000
Sales Returns and Allowances	$ 70,000
Sales Discounts	55,000
Cost of Merchandise Sold	3,600,000
Sales Salaries Expense	925,000
Advertising Expense	150,000
Depreciation Expense—Store Equipment	35,000
Miscellaneous Selling Expense	40,000
Office Salaries Expense	315,000
Rent Expense	115,000
Depreciation Expense—Office Equipment	22,000
Insurance Expense	18,000
Office Supplies Expense	9,000
Miscellaneous Administrative Exp.	11,000
Interest Expense	15,000

Instructions

1. Prepare a multiple-step income statement.
2. Prepare a statement of owner's equity.
3. Prepare a report form of balance sheet, assuming that the current portion of the note payable is $16,000.
4. Briefly explain (a) how multiple-step and single-step income statements differ and (b) how report-form and account-form balance sheets differ.

OBJ. 2, 4

✓ 3. Total assets: $1,980,000

PR 6-2A Single-step income statement and account form of balance sheet

Selected accounts and related amounts for Carpet Land Co. for the fiscal year ended October 31, 2012, are presented in Problem 6-1A.

Instructions

1. Prepare a single-step income statement in the format shown in Exhibit 2.
2. Prepare a statement of owner's equity.
3. Prepare an account form of balance sheet, assuming that the current portion of the note payable is $16,000.
4. Prepare closing entries as of October 31, 2012.

OBJ. 3

PR 6-3A Sales-related transactions

The following selected transactions were completed by Artic Supply Co., which sells office supplies primarily to wholesalers and occasionally to retail customers:

Jan. 2. Sold merchandise on account to Mammoth Co., $15,000, terms FOB destination, 1/10, n/30. The cost of the merchandise sold was $9,000.

3. Sold merchandise for $8,000 plus 8% sales tax to retail cash customers. The cost of merchandise sold was $6,000.

4. Sold merchandise on account to Sando Co., $12,500, terms FOB shipping point, n/eom. The cost of merchandise sold was $7,500.

5. Sold merchandise for $10,000 plus 8% sales tax to retail customers who used MasterCard. The cost of merchandise sold was $6,000.

12. Received check for amount due from Mammoth Co. for sale on January 2.

14. Sold merchandise to customers who used American Express cards, $9,000. The cost of merchandise sold was $5,500.

16. Sold merchandise on account to Malloy Co., $18,700, terms FOB shipping point, 1/10, n/30. The cost of merchandise sold was $11,250.

Jan. 18. Issued credit memo for $2,700 to Malloy Co. for merchandise returned from sale on January 16. The cost of the merchandise returned was $1,600.

19. Sold merchandise on account to Savin Co., $21,500, terms FOB shipping point, 2/10, n/30. Added $500 to the invoice for prepaid freight. The cost of merchandise sold was $12,900.

26. Received check for amount due from Malloy Co. for sale on January 16 less credit memo of January 18 and discount.

28. Received check for amount due from Savin Co. for sale of January 19.

31. Received check for amount due from Sando Co. for sale of January 4.

31. Paid Eagle Delivery Service $6,190 for merchandise delivered during January to customers under shipping terms of FOB destination.

Feb. 3. Paid City Bank $1,350 for service fees for handling MasterCard and American Express sales during January.

15. Paid $2,100 to state sales tax division for taxes owed on sales.

Instructions

Journalize the entries to record the transactions of Artic Supply Co.

OBJ. 3

PR 6-4A Purchase-related transactions

The following selected transactions were completed by Gourmet Company during January of the current year:

Jan. 1. Purchased merchandise from Bearcat Co., $19,000, terms FOB destination, n/30.

3. Purchased merchandise from Alvarado Co., $28,500, terms FOB shipping point, 2/10, n/eom. Prepaid freight of $650 was added to the invoice.

4. Purchased merchandise from Fogel Co., $11,000, terms FOB destination, 2/10, n/30.

6. Issued debit memo to Fogel Co. for $1,000 of merchandise returned from purchase on January 4.

13. Paid Alvarado Co. for invoice of January 3, less discount.

14. Paid Fogel Co. for invoice of January 4, less debit memo of January 6 and discount.

19. Purchased merchandise from Unitrust Co., $32,900, terms FOB shipping point, n/eom.

19. Paid freight of $750 on January 19 purchase from Unitrust Co.

20. Purchased merchandise from Lenn Co., $10,000, terms FOB destination, 1/10, n/30.

30. Paid Lenn Co. for invoice of January 20, less discount.

31. Paid Bearcat Co. for invoice of January 1.

31. Paid Unitrust Co. for invoice of January 19.

Instructions

Journalize the entries to record the transactions of Gourmet Company for January.

OBJ. 3

PR 6-5A Sales-related and purchase-related transactions

The following were selected from among the transactions completed by The Grill Company during April of the current year:

Apr. 3. Purchased merchandise on account from Grizzly Co., list price $60,000, trade discount 30%, terms FOB destination, 2/10, n/30.

4. Sold merchandise for cash, $23,750. The cost of the merchandise sold was $14,000.

Apr. 5. Purchased merchandise on account from Ferraro Co., $26,000, terms FOB shipping point, 2/10, n/30, with prepaid freight of $600 added to the invoice.
6. Returned $7,000 ($10,000 list price less trade discount of 30%) of merchandise purchased on April 3 from Grizzly Co.
11. Sold merchandise on account to Logan Co., list price $12,000, trade discount 25%, terms 1/10, n/30. The cost of the merchandise sold was $5,000.
13. Paid Grizzly Co. on account for purchase of April 3, less return of April 6 and discount.
14. Sold merchandise on VISA, $90,000. The cost of the merchandise sold was $55,000.
15. Paid Ferraro Co. on account for purchase of April 5, less discount.
21. Received cash on account from sale of April 11 to Logan Co., less discount.
24. Sold merchandise on account to Half Moon Co., $17,500, terms 1/10, n/30. The cost of the merchandise sold was $10,000.
28. Paid VISA service fee of $4,000.
30. Received merchandise returned by Half Moon Co. from sale on April 24, $2,500. The cost of the returned merchandise was $1,400.

Instructions

Journalize the transactions.

OBJ. 3

PR 6-6A Sales-related and purchase-related transactions for seller and buyer

The following selected transactions were completed during May between Sky Company and Big Co.:

May 1. Sky Company sold merchandise on account to Big Co., $72,000, terms FOB destination, 2/15, n/eom. The cost of the merchandise sold was $43,200.
2. Sky Company paid freight of $3,000 for delivery of merchandise sold to Big Co. on May 1.
5. Sky Company sold merchandise on account to Big Co., $48,500, terms FOB shipping point, n/eom. The cost of the merchandise sold was $30,000.
6. Big Co. returned $12,000 of merchandise purchased on account on May 1 from Sky Company. The cost of the merchandise returned was $7,200.
9. Big Co. paid freight of $1,800 on May 5 purchase from Sky Company.
15. Sky Company sold merchandise on account to Big Co., $64,000, terms FOB shipping point, 1/10, n/30. Sky Company paid freight of $2,500, which was added to the invoice. The cost of the merchandise sold was $38,400.
16. Big Co. paid Sky Company for purchase of May 1, less discount and less return of May 6.
25. Big Co. paid Sky Company on account for purchase of May 15, less discount.
31. Big Co. paid Sky Company on account for purchase of May 5.

Instructions

Journalize the May transactions for (1) Sky Company and (2) Big Co.

Appendix

PR 6-7A Purchase-related transactions using periodic inventory system

Selected transactions for Gourmet Company during January of the current year are listed in Problem 6-4A.

Instructions

Journalize the entries to record the transactions of Gourmet Company for January using the periodic inventory system.

Appendix

PR 6-8A Sales-related and purchase-related transactions using periodic inventory system

Selected transactions for The Grill Company during April of the current year are listed in Problem 6-5A.

Instructions

Journalize the entries to record the transactions of The Grill Company for April using the periodic inventory system.

Appendix

PR 6-9A Sales-related and purchase-related transactions for buyer and seller using periodic inventory system

Selected transactions during May between Sky Company and Big Co. are listed in Problem 6-6A.

Instructions

Journalize the entries to record the transactions for (1) Sky Company and (2) Big Co. assuming that both companies use the periodic inventory system.

✓ 2. Net income, $345,000

Appendix

PR 6-10A Periodic inventory accounts, multiple-step income statement, closing entries

On July 31, 2012, the balances of the accounts appearing in the ledger of Sagebrush Company are as follows:

Cash	$ 18,300	Sales Discounts	$ 8,000
Accounts Receivable	72,000	Purchases	700,000
Merchandise Inventory, August 1, 2011	90,000	Purchases Returns and Allowances	6,000
Office Supplies	3,000	Purchases Discounts	4,000
Prepaid Insurance	4,500	Freight In	30,000
Land	300,000	Sales Salaries Expense	300,000
Store Equipment	270,000	Advertising Expense	55,000
Accumulated Depreciation—Store Equipment	55,900	Delivery Expense	9,000
Office Equipment	78,500	Depreciation Expense—Store Equipment	6,000
Accumulated Depreciation—Office Equipment	16,000	Miscellaneous Selling Expense	10,000
Accounts Payable	27,800	Office Salaries Expense	150,000
Salaries Payable	3,000	Rent Expense	30,000
Unearned Rent	8,300	Insurance Expense	3,000
Notes Payable	50,000	Office Supplies Expense	2,000
Peter Richards, Capital	355,300	Depreciation Expense—Office Equipment	1,500
Peter Richards, Drawing	35,000	Miscellaneous Administrative Expense	3,500
Sales	1,660,000	Rent Revenue	7,000
Sales Returns and Allowances	12,000	Interest Expense	2,000

Instructions

1. Does Sagebrush Company use a periodic or perpetual inventory system? Explain.
2. Prepare a multiple-step income statement for Sagebrush Company for the year ended July 31, 2012. The merchandise inventory as of July 31, 2012, was $80,000.
3. Prepare the closing entries for Sagebrush Company as of July 31, 2012.
4. What would be the net income if the perpetual inventory system had been used?

Problems Series B

OBJ. 1, 2

✔ 1. Net income: $360,000

PR 6-1B Multiple-step income statement and report form of balance sheet

The following selected accounts and their current balances appear in the ledger of Black Lab Co. for the fiscal year ended April 30, 2012:

Cash	$ 42,000	Sales Returns and Allowances	$ 40,000
Accounts Receivable	150,000	Sales Discounts	15,000
Merchandise Inventory	180,000	Cost of Merchandise Sold	1,855,000
Office Supplies	5,000	Sales Salaries Expense	400,000
Prepaid Insurance	12,000	Advertising Expense	120,000
Office Equipment	120,000	Depreciation Expense— Store Equipment	15,000
Accumulated Depreciation— Office Equipment	28,000	Miscellaneous Selling Expense	18,000
Store Equipment	500,000	Office Salaries Expense	240,000
Accumulated Depreciation— Store Equipment	87,500	Rent Expense	38,000
Accounts Payable	48,500	Insurance Expense	24,000
Salaries Payable	4,000	Depreciation Expense— Office Equipment	7,000
Note Payable (final payment due 2032)	140,000	Office Supplies Expense	4,000
Cindy Worley, Capital	386,000	Miscellaneous Administrative Exp.	6,000
Cindy Worley, Drawing	45,000	Interest Expense	8,000
Sales	3,150,000		

Instructions

1. Prepare a multiple-step income statement.
2. Prepare a statement of owner's equity.
3. Prepare a report form of balance sheet, assuming that the current portion of the note payable is $7,000.
4. Briefly explain (a) how multiple-step and single-step income statements differ and (b) how report-form and account-form balance sheets differ.

OBJ. 2, 4

✔ 3. Total assets: $893,500

PR 6-2B Single-step income statement and account form of balance sheet

Selected accounts and related amounts for Black Lab Co. for the fiscal year ended April 30, 2012, are presented in Problem 6-1B.

Instructions

1. Prepare a single-step income statement in the format shown in Exhibit 2.
2. Prepare a statement of owner's equity.
3. Prepare an account form of balance sheet, assuming that the current portion of the note payable is $7,000.
4. Prepare closing entries as of April 30, 2012.

OBJ. 3

PR 6-3B Sales-related transactions

The following selected transactions were completed by Lawn Supplies Co., which sells irrigation supplies primarily to wholesalers and occasionally to retail customers:

Mar. 1. Sold merchandise on account to Green Grass Co., $18,000, terms FOB shipping point, n/eom. The cost of merchandise sold was $11,000.

2. Sold merchandise for $42,000 plus 7% sales tax to retail cash customers. The cost of merchandise sold was $25,200.

5. Sold merchandise on account to Jones Company, $30,000, terms FOB destination, 1/10, n/30. The cost of merchandise sold was $19,500.

Mar. 8. Sold merchandise for $20,000 plus 7% sales tax to retail customers who used VISA cards. The cost of merchandise sold was $14,000.

13. Sold merchandise to customers who used MasterCard cards, $15,800. The cost of merchandise sold was $9,500.

14. Sold merchandise on account to Haynes Co., $8,000, terms FOB shipping point, 1/10, n/30. The cost of merchandise sold was $5,000.

15. Received check for amount due from Jones Company for sale on March 5.

16. Issued credit memo for $1,800 to Haynes Co. for merchandise returned from sale on March 14. The cost of the merchandise returned was $1,000.

18. Sold merchandise on account to Horton Company, $6,850, terms FOB shipping point, 2/10, n/30. Paid $210 for freight and added it to the invoice. The cost of merchandise sold was $4,100.

24. Received check for amount due from Haynes Co. for sale on March 14 less credit memo of March 16 and discount.

28. Received check for amount due from Horton Company for sale of March 18.

31. Paid First Delivery Service $5,750 for merchandise delivered during March to customers under shipping terms of FOB destination.

31. Received check for amount due from Green Grass Co. for sale of March 1.

Apr. 3. Paid First Federal Bank $1,650 for service fees for handling MasterCard and VISA sales during March.

10. Paid $6,175 to state sales tax division for taxes owed on sales.

Instructions

Journalize the entries to record the transactions of Lawn Supplies Co.

OBJ. 3

PR 6-4B Purchase-related transactions

The following selected transactions were completed by Britt Co. during October of the current year:

Oct. 1. Purchased merchandise from Mable Co., $17,500, terms FOB shipping point, 2/10, n/eom. Prepaid freight of $300 was added to the invoice.

5. Purchased merchandise from Conway Co., $22,600, terms FOB destination, n/30.

10. Paid Mable Co. for invoice of October 1, less discount.

13. Purchased merchandise from Larson Co., $12,750, terms FOB destination, 2/10, n/30.

14. Issued debit memo to Larson Co. for $1,500 of merchandise returned from purchase on October 13.

18. Purchased merchandise from Lakey Company, $12,250, terms FOB shipping point, n/eom.

18. Paid freight of $275 on October 18 purchase from Lakey Company.

19. Purchased merchandise from Adler Co., $14,200, terms FOB destination, 2/10, n/30.

23. Paid Larson Co. for invoice of October 13, less debit memo of October 14 and discount.

29. Paid Adler Co. for invoice of October 19, less discount.

31. Paid Lakey Company for invoice of October 18.

31. Paid Conway Co. for invoice of October 5.

Instructions

Journalize the entries to record the transactions of Britt Co. for October.

OBJ. 3

GL

PR 6-5B Sales-related and purchase-related transactions

The following were selected from among the transactions completed by Wild Adventures Company during December of the current year:

Dec. 3. Purchased merchandise on account from Miramar Co., list price $45,000, trade discount 20%, terms FOB shipping point, 2/10, n/30, with prepaid freight of $1,200 added to the invoice.

5. Purchased merchandise on account from Grand Canyon Co., $19,000, terms FOB destination, 2/10, n/30.

6. Sold merchandise on account to Arches Co., list price $30,000, trade discount 25%, terms 2/10, n/30. The cost of the merchandise sold was $14,000.

7. Returned $3,000 of merchandise purchased on December 5 from Grand Canyon Co.

13. Paid Miramar Co. on account for purchase of December 3, less discount.

15. Paid Grand Canyon Co. on account for purchase of December 5, less return of December 7 and discount.

16. Received cash on account from sale of December 6 to Arches Co., less discount.

19. Sold merchandise on MasterCard, $41,950. The cost of the merchandise sold was $25,000.

22. Sold merchandise on account to Yellowstone River Co., $20,000, terms 2/10, n/30. The cost of the merchandise sold was $9,000.

23. Sold merchandise for cash, $57,500. The cost of the merchandise sold was $34,500.

28. Received merchandise returned by Yellowstone River Co. from sale on December 22, $4,000. The cost of the returned merchandise was $1,800.

31. Paid MasterCard service fee of $1,700.

Instructions

Journalize the transactions.

OBJ. 3

PR 6-6B Sales-related and purchase-related transactions for seller and buyer

The following selected transactions were completed during June between Salinas Company and Brokaw Company:

June 2. Salinas Company sold merchandise on account to Brokaw Company, $20,000, terms FOB shipping point, 2/10, n/30. Salinas Company paid freight of $675, which was added to the invoice. The cost of the merchandise sold was $12,000.

8. Salinas Company sold merchandise on account to Brokaw Company, $34,750, terms FOB destination, 1/15, n/eom. The cost of the merchandise sold was $19,850.

8. Salinas Company paid freight of $800 for delivery of merchandise sold to Brokaw Company on June 8.

12. Brokaw Company returned $5,750 of merchandise purchased on account on June 8 from Salinas Company. The cost of the merchandise returned was $3,000.

12. Brokaw Company paid Salinas Company for purchase of June 2, less discount.

23. Brokaw Company paid Salinas Company for purchase of June 8, less discount and less return of June 12.

24. Salinas Company sold merchandise on account to Brokaw Company, $31,800, terms FOB shipping point, n/eom. The cost of the merchandise sold was $20,500.

26. Brokaw Company paid freight of $475 on June 24 purchase from Salinas Company.

30. Brokaw Company paid Salinas Company on account for purchase of June 24.

Instructions

Journalize the June transactions for (1) Salinas Company and (2) Brokaw Company.

Appendix
PR 6-7B Purchase-related transactions using periodic inventory system

Selected transactions for Britt Co. during October of the current year are listed in Problem 6-4B.

Instructions

Journalize the entries to record the transactions of Britt Co. for October using the periodic inventory system.

Appendix
PR 6-8B Sales-related and purchase-related transactions using periodic inventory system

Selected transactions for Wild Adventures Company during December of the current year are listed in Problem 6-5B.

Instructions

Journalize the entries to record the transactions of Wild Adventures Company for December using the periodic inventory system.

Appendix
PR 6-9B Sales-related and purchase-related transactions for buyer and seller using periodic inventory system

Selected transactions during June between Salinas Company and Brokaw Company are listed in Problem 6-6B.

Instructions

Journalize the entries to record the transactions for (1) Salinas Company and (2) Brokaw Company assuming that both companies use the periodic inventory system.

✓ 2. Net income, $395,000

Appendix
PR 6-10B Periodic inventory accounts, multiple-step income statement, closing entries

On April 30, 2012, the balances of the accounts appearing in the ledger of Heritage Company are as follows:

Cash	$ 60,000	Sales Discounts	$ 35,000
Accounts Receivable	150,000	Purchases	1,770,000
Merchandise Inventory, May 1, 2011	290,000	Purchases Returns and Allowances	12,000
Office Supplies	7,000	Purchases Discounts	8,000
Prepaid Insurance	18,000	Freight In	25,000
Land	70,000	Sales Salaries Expense	450,000
Store Equipment	400,000	Advertising Expense	200,000
Accumulated Depreciation—Store Equipment	190,000	Delivery Expense	18,000
Office Equipment	250,000	Depreciation Expense—Store Equipment	12,000
Accumulated Depreciation—Office Equipment	110,000	Miscellaneous Selling Expense	28,000
Accounts Payable	85,000	Office Salaries Expense	200,000
Salaries Payable	9,000	Rent Expense	45,000
Unearned Rent	6,000	Insurance Expense	6,000
Notes Payable	50,000	Office Supplies Expense	5,000
Mary Diaz, Capital	525,000	Depreciation Expense—Office Equipment	3,000
Mary Diaz, Drawing	100,000	Miscellaneous Administrative Expense	13,000
Sales	3,175,000	Rent Revenue	27,000
Sales Returns and Allowances	40,000	Interest Expense	2,000

Instructions

1. Does Heritage Company use a periodic or perpetual inventory system? Explain.
2. Prepare a multiple-step income statement for Heritage Company for the year ended April 30, 2012. The merchandise inventory as of April 30, 2012, was $315,000.
3. Prepare the closing entries for Heritage Company as of April 30, 2012.
4. What would be the net income if the perpetual inventory system had been used?

Comprehensive Problem 2

✔ 8. Net income: $710,760

Ocean Atlantic Co. is a merchandising business. The account balances for Ocean Atlantic Co. as of July 1, 2012 (unless otherwise indicated), are as follows:

110	Cash	$ 63,600
112	Accounts Receivable	153,900
115	Merchandise Inventory	602,400
116	Prepaid Insurance	16,800
117	Store Supplies	11,400
123	Store Equipment	469,500
124	Accumulated Depreciation—Store Equipment	56,700
210	Accounts Payable	96,600
211	Salaries Payable	—
310	Kevin Gilmour, Capital, August 1, 2011	555,300
311	Kevin Gilmour, Drawing	135,000
312	Income Summary	—
410	Sales	3,221,100
411	Sales Returns and Allowances	92,700
412	Sales Discounts	59,400
510	Cost of Merchandise Sold	1,623,000
520	Sales Salaries Expense	334,800
521	Advertising Expense	81,000
522	Depreciation Expense	—
523	Store Supplies Expense	—
529	Miscellaneous Selling Expense	12,600
530	Office Salaries Expense	182,100
531	Rent Expense	83,700
532	Insurance Expense	—
539	Miscellaneous Administrative Expense	7,800

During July, the last month of the fiscal year, the following transactions were completed:

July 1. Paid rent for July, $4,000.

3. Purchased merchandise on account from Lingard Co., terms 2/10, n/30, FOB shipping point, $25,000.

4. Paid freight on purchase of July 3, $1,000.

6. Sold merchandise on account to Holt Co., terms 2/10, n/30, FOB shipping point, $40,000. The cost of the merchandise sold was $24,000.

7. Received $18,000 cash from Flatt Co. on account, no discount.

10. Sold merchandise for cash, $90,000. The cost of the merchandise sold was $50,000.

13. Paid for merchandise purchased on July 3, less discount.

14. Received merchandise returned on sale of July 6, $7,000. The cost of the merchandise returned was $4,500.

15. Paid advertising expense for last half of July, $9,000.

16. Received cash from sale of July 6, less return of July 14 and discount.

19. Purchased merchandise for cash, $22,000.

19. Paid $23,100 to Carino Co. on account, no discount.

Record the following transactions on Page 21 of the journal.

20. Sold merchandise on account to Reedley Co., terms 1/10, n/30, FOB shipping point, $40,000. The cost of the merchandise sold was $25,000.

21. For the convenience of the customer, paid freight on sale of July 20, $1,100.

July 21. Received $17,600 cash from Owen Co. on account, no discount.

21. Purchased merchandise on account from Munson Co., terms 1/10, n/30, FOB destination, $32,000.

24. Returned $5,000 of damaged merchandise purchased on July 21, receiving credit from the seller.

26. Refunded cash on sales made for cash, $12,000. The cost of the merchandise returned was $7,200.

28. Paid sales salaries of $22,800 and office salaries of $15,200.

29. Purchased store supplies for cash, $2,400.

30. Sold merchandise on account to Dix Co., terms 2/10, n/30, FOB shipping point, $18,750. The cost of the merchandise sold was $11,250.

30. Received cash from sale of July 20, less discount, plus freight paid on July 21.

31. Paid for purchase of July 21, less return of July 24 and discount.

Instructions

1. Enter the balances of each of the accounts in the appropriate balance column of a four-column account. Write *Balance* in the item section, and place a check mark (✓) in the Posting Reference column. Journalize the transactions for July starting on Page 20 of the journal.
2. Post the journal to the general ledger, extending the month-end balances to the appropriate balance columns after all posting is completed. In this problem, you are not required to update or post to the accounts receivable and accounts payable subsidiary ledgers.
3. Prepare an unadjusted trial balance.
4. At the end of July, the following adjustment data were assembled. Analyze and use these data to complete (5) and (6).

a.	Merchandise inventory on July 31		$565,000
b.	Insurance expired during the year		13,400
c.	Store supplies on hand on July 31		3,900
d.	Depreciation for the current year		11,500
e.	Accrued salaries on July 31:		
	Sales salaries	$3,200	
	Office salaries	1,300	4,500

5. **Optional:** Enter the unadjusted trial balance on a 10-column end-of-period spreadsheet (work sheet), and complete the spreadsheet.
6. Journalize and post the adjusting entries. Record the adjusting entries on Page 22 of the journal.
7. Prepare an adjusted trial balance.
8. Prepare an income statement, a statement of owner's equity, and a balance sheet.
9. Prepare and post the closing entries. Record the closing entries on Page 23 of the journal. Indicate closed accounts by inserting a line in both the Balance columns opposite the closing entry. Insert the new balance in the owner's capital account.
10. Prepare a post-closing trial balance.

Cases & Projects

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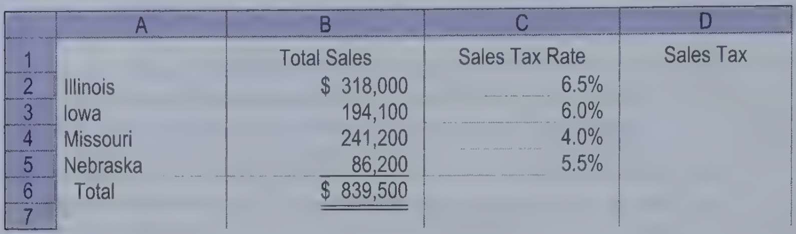
Excel Success Special Activities

SA 6-1 Computing sales tax, multiple states

Jerrod Corporation had sales in several states. The sales and assumed sales tax rate for each state are summarized in a spreadsheet as follows:



	A	B	C	D
1		Total Sales	Sales Tax Rate	Sales Tax
2	Illinois	$ 318,000	6.5%	
3	Iowa	194,100	6.0%	
4	Missouri	241,200	4.0%	
5	Nebraska	86,200	5.5%	
6	Total	$ 839,500		
7				

a. Open the Excel file *SA6-1_2e.*

b. Finalize the spreadsheet by determining the sales tax for each state and the total sales tax liability for Jerrod Corporation in Column D.

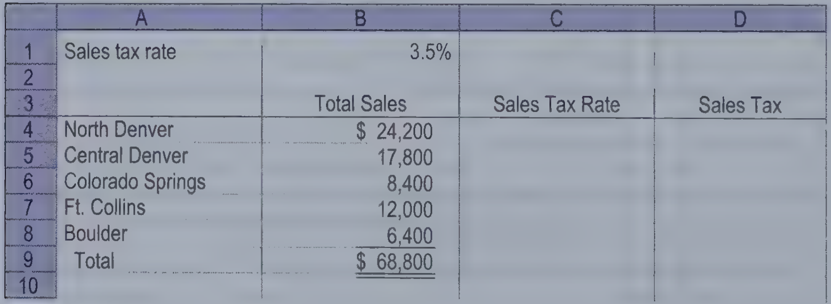
Use percent formatting for the sales tax rates. For example, cell C2 is entered as .065 and formatted using the percent format with one decimal place.

c. When you have completed the sales tax table, perform a "save as," replacing the entire file name with the following:

SA6-1_2e[your first name initial]_[your last name]

SA 6-2 Computing sales tax, multiple locations

U Store It, Inc., has multiple storage locations throughout the state of Colorado. The sales from each storage location are summarized in a spreadsheet as follows:



	A	B	C	D
1	Sales tax rate	3.5%		
2				
3		Total Sales	Sales Tax Rate	Sales Tax
4	North Denver	$ 24,200		
5	Central Denver	17,800		
6	Colorado Springs	8,400		
7	Ft. Collins	12,000		
8	Boulder	6,400		
9	Total	$ 68,800		
10				

a. Open the Excel file *SA6-2_2e.*

b. Assume the sales tax rate for Colorado is 3.5%. Insert .035. Format as a percentage amount rounded to one decimal place in the cells C4:C8.

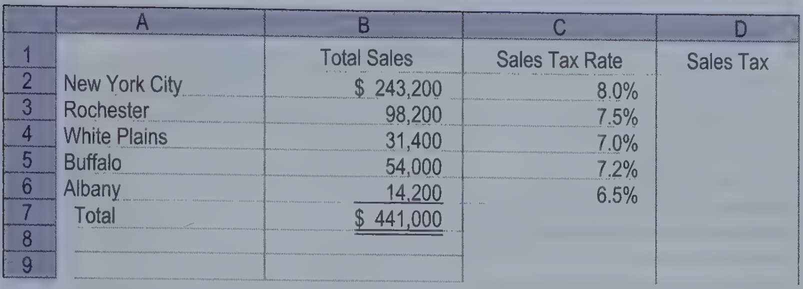
c. Finalize the spreadsheet by determining the sales tax for each location and total sales tax for U Store It, Inc. Use column C for the sales tax rate and column D for the total sales tax.

d. When you have completed the sales tax table, perform a "save as," replacing the entire file name with the following:

SA6-1_2e[your first name initial]_[your last name]

SA 6-3 Computing sales tax, multiple cities

Cities in many states may add an additional city sales tax rate to the state tax rate. Assume that cities in the state of New York can add an additional sales tax. Timely Blessings, Inc., has sales in various cities in New York. The sales and assumed total sales tax rate (city plus state rates) are summarized in a spreadsheet as follows:



	A	B	C	D
1		Total Sales	Sales Tax Rate	Sales Tax
2	New York City	$ 243,200	8.0%	
3	Rochester	98,200	7.5%	
4	White Plains	31,400	7.0%	
5	Buffalo	54,000	7.2%	
6	Albany	14,200	6.5%	
7	Total	$ 441,000		
8				
9				

a. Open the Excel file *SA6-3_2e.*

b. Finalize the spreadsheet by determining the sales tax for each city and total salestax Column D. Use percent format for the sales tax rates. For example, cell C2 is entered as .08 and formatted using the percent format with one decimal place.

c. When you have completed the sales tax table, perform a "save as," replacing the entire file name with the following:

SA6-3_2e[your first name initial]_[your last name]

CHAPTER

7

cVay/Digital Vision/Getty Images

Inventories

Best Buy

Assume that in September you purchased a Sony HDTV plasma television from **Best Buy**. At the same time, you purchased a Denon surround sound system for $399.99. You liked your surround sound so well that in November you purchased an identical Denon system on sale for $349.99 for your bedroom TV. Over the holidays, you moved to a new apartment and in the process of unpacking discovered that one of the Denon surround sound systems was missing. Luckily, your renters/homeowners insurance policy will cover the theft, but the insurance company needs to know the cost of the system that was stolen.

The Denon systems were identical. However, to respond to the insurance company, you will need to identify which system was stolen. Was it the first system, which cost $399.99, or was it the second system, which cost $349.99? Whichever assumption you make may determine the amount that you receive from the insurance company.

Merchandising businesses such as Best Buy make similar assumptions when identical merchandise is purchased at different costs. For example, Best Buy may have purchased thousands of Denon surround sound systems over the past year at different costs. At the end of a period, some of the Denon systems will still be in inventory, and some will have been sold. But which costs relate to the sold systems, and which costs relate to the Denon systems still in inventory? Best Buy's assumption about inventory costs can involve large dollar amounts and, thus, can have a significant impact on the financial statements. For example, Best Buy reported $4,753 million of inventory on February 28, 2009, and net income of $1,003 million for the year.

This chapter discusses such issues as how to determine the cost of merchandise in inventory and the cost of merchandise sold. However, this chapter begins by discussing the importance of control over inventory.

Learning Objectives

After studying this chapter, you should be able to:

		Example Exercises		*Page*
OBJ. 1	Describe the importance of control over inventory. Control of Inventory Safeguarding Inventory Reporting Inventory			
OBJ. 2	Describe three inventory cost flow assumptions and how they impact the income statement and balance sheet. Inventory Cost Flow Assumptions	EE 7-1		319
OBJ. 3	Determine the cost of inventory under the perpetual inventory system, using the FIFO, LIFO, and average cost methods. Inventory Costing Methods Under a Perpetual Inventory System			
	First-In, First-Out Method	EE 7-2		321
	Last-In, First-Out Method	EE 7-3		322
	Average Cost Method Computerized Perpetual Inventory Systems			
OBJ. 4	Determine the cost of inventory under the periodic inventory system, using the FIFO, LIFO, and average cost methods. Inventory Costing Methods Under a Periodic Inventory System			
	First-In, First-Out Method	EE 7-4		326
	Last-In, First-Out Method	EE 7-4		326
	Average Cost Method	EE 7-4		326
OBJ. 5	Compare and contrast the use of the three inventory costing methods. Comparing Inventory Costing Methods			
OBJ. 6	Describe and illustrate the reporting of merchandise inventory in the financial statements. Reporting Merchandise Inventory in the Financial Statements			
	Valuation at Lower of Cost or Market	EE 7-5	excel success	329
	Valuation at Net Realizable Value Merchandise Inventory on the Balance Sheet			
	Effect of Inventory Errors on the Financial Statements	EE 7-6		333
OBJ. 7	Describe and illustrate the inventory turnover and the number of days' sales in inventory in analyzing the efficiency and effectiveness of inventory management. Financial Analysis and Interpretation: Inventory Turnover and Number of Days' Sales in Inventory	EE 7-7		335

At a Glance 7 Page 338

OBJ. 1 Describe the importance of control over inventory.

Control of Inventory

Two primary objectives of control over inventory are as follows:[1]

1. Safeguarding the inventory from damage or theft.
2. Reporting inventory in the financial statements.

Safeguarding Inventory

Controls for safeguarding inventory begin as soon as the inventory is ordered. The following documents are often used for inventory control:

Purchase order
Receiving report
Vendor's invoice

The **purchase order** authorizes the purchase of the inventory from an approved vendor. As soon as the inventory is received, a receiving report is completed. The **receiving report** establishes an initial record of the receipt of the inventory. To make

---

[1] Additional controls used by businesses are described and illustrated in Chapter 8, "Sarbanes-Oxley, Internal Control, and Cash."

sure the inventory received is what was ordered, the receiving report is compared with the company's purchase order. The price, quantity, and description of the item on the purchase order and receiving report are then compared to the vendor's invoice. If the receiving report, purchase order, and vendor's invoice agree, the inventory is recorded in the accounting records. If any differences exist, they should be investigated and reconciled.

Recording inventory using a perpetual inventory system is also an effective means of control. The amount of inventory is always available in the **subsidiary inventory ledger**. This helps keep inventory quantities at proper levels. For example, comparing inventory quantities with maximum and minimum levels allows for the timely reordering of inventory and prevents ordering excess inventory.

Finally, controls for safeguarding inventory should include security measures to prevent damage and customer or employee theft. Some examples of security measures include the following:

1. Storing inventory in areas that are restricted to only authorized employees.
2. Locking high-priced inventory in cabinets.
3. Using two-way mirrors, cameras, security tags, and guards.

Best Buy uses scanners to screen customers as they leave the store for merchandise that has not been purchased. In addition, Best Buy stations greeters at the store's entrance to keep customers from bringing in bags that can be used to shoplift merchandise.

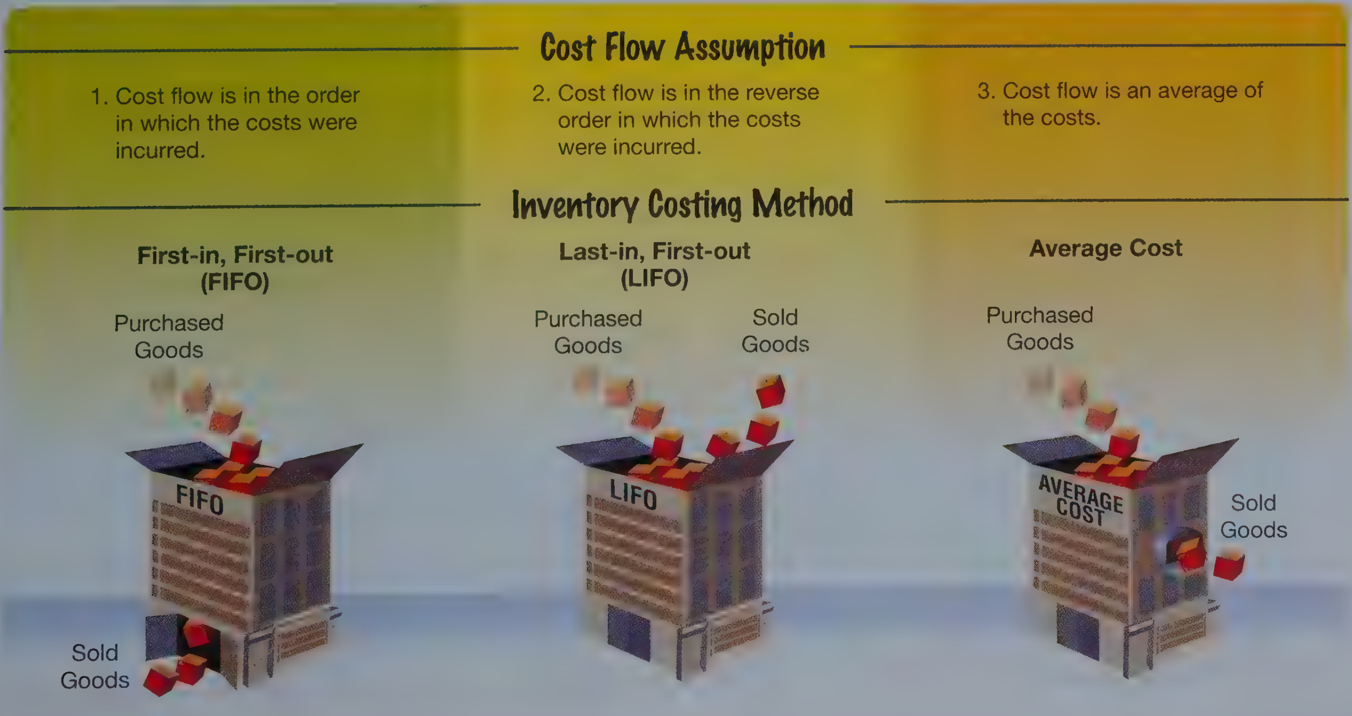
Reporting Inventory

A **physical inventory** or count of inventory should be taken near year-end to make sure that the quantity of inventory reported in the financial statements is accurate. After the quantity of inventory on hand is determined, the cost of the inventory is assigned for reporting in the financial statements. Most companies assign costs to inventory using one of three inventory cost flow assumptions. If a physical count is not possible or inventory records are not available, the inventory cost may be estimated as described in the appendix at the end of this chapter.

Inventory Cost Flow Assumptions

OBJ 2 Describe three inventory cost flow assumptions and how they impact the income statement and balance sheet.

An accounting issue arises when identical units of merchandise are acquired at different unit costs during a period. In such cases, when an item is sold, it is necessary to determine its cost using a cost flow assumption and related inventory cost flow method. Three common cost flow assumptions and related inventory cost flow methods are shown below.



To illustrate, assume that three identical units of merchandise are purchased during May, as follows:

			Units	Cost
May	10	Purchase	1	$ 9
	18	Purchase	1	13
	24	Purchase	1	14
Total			3	$36

Average cost per unit: $12 ($36 ÷ 3 units)

Assume that one unit is sold on May 30 for $20. Depending upon which unit was sold, the gross profit varies from $11 to $6 as shown below.

	May 10 Unit Sold	May 18 Unit Sold	May 24 Unit Sold
Sales	$20	$20	$20
Cost of merchandise sold	9	13	14
Gross profit	$11	$ 7	$ 6
Ending inventory	$27	$23	$22
	($13 + $14)	($9 + $14)	($9 + $13)

Under the **specific identification inventory cost flow method**, the unit sold is identified with a specific purchase. The ending inventory is made up of the remaining units on hand. Thus, the gross profit, cost of merchandise sold, and ending inventory can vary as shown above. For example, if the May 18 unit was sold, the cost of merchandise sold is $13, the gross profit is $7, and the ending inventory is $23.

The specific identification method is normally used by automobile dealerships, jewelry stores, and art galleries.

The specific identification method is not practical unless each inventory unit can be separately identified. For example, an automobile dealer may use the specific identification method since each automobile has a unique serial number. However, most businesses cannot identify each inventory unit separately. In such cases, one of the following three inventory cost flow methods is used.

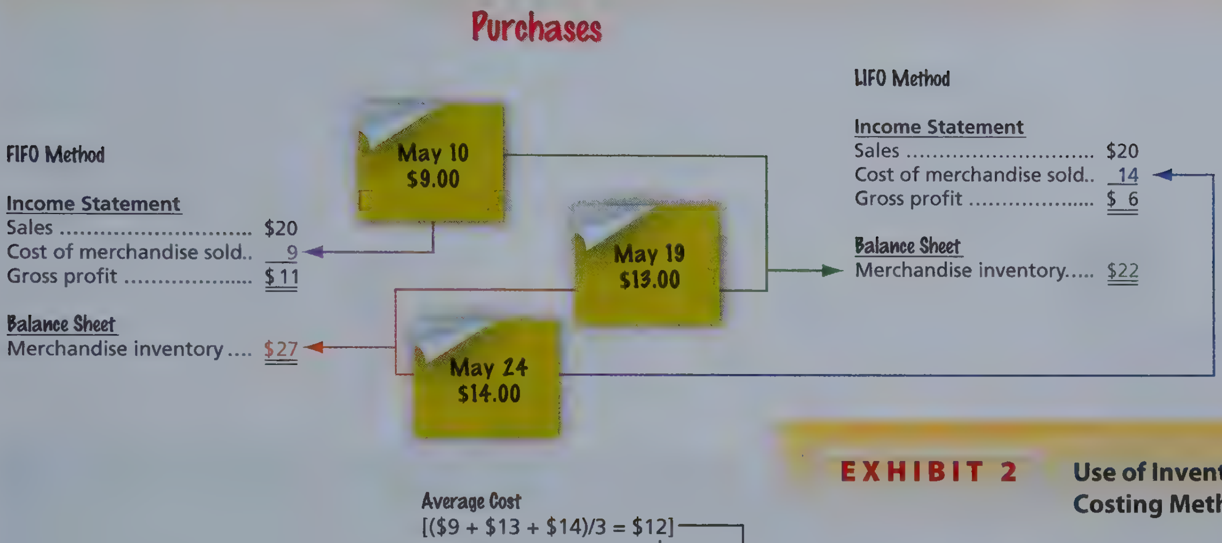
Under the **first-in, first-out (FIFO) inventory cost flow method**, the first units purchased are assumed to be sold and the ending inventory is made up of the most recent purchases. In the preceding example, the May 10 unit would be assumed to have been sold. Thus, the gross profit would be $11, and the ending inventory would be $27 ($13 + $14).

Under the **last-in, first-out (LIFO) inventory cost flow method**, the last units purchased are assumed to be sold and the ending inventory is made up of the first purchases. In the preceding example, the May 24 unit would be assumed to have been sold. Thus, the gross profit would be $6, and the ending inventory would be $22 ($9 + $13).

Under the **average inventory cost flow method**, the cost of the units sold and in ending inventory is an average of the purchase costs. In the preceding example, the cost of the unit sold would be $12 ($36 ÷ 3 units), the gross profit would be $8 ($20 – $12), and the ending inventory would be $24 ($12 × 2 units).

The three inventory cost flow methods, FIFO, LIFO, and average, are shown in Exhibit 1. The frequency with which the FIFO, LIFO, and average methods are used is shown in Exhibit 2.

EXHIBIT 1 Inventory Costing Methods



FIFO Method

Income Statement

Sales	$20
Cost of merchandise sold	9
Gross profit	$11

Balance Sheet

Merchandise inventory	$27

LIFO Method

Income Statement

Sales	$20
Cost of merchandise sold	14
Gross profit	$ 6

Balance Sheet

Merchandise inventory	$22

Average Cost
[($9 + $13 + $14)/3 = $12]

Average Cost

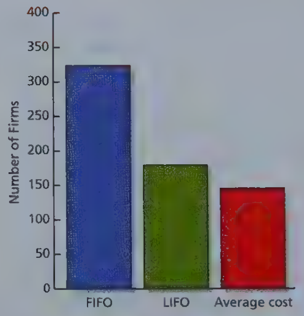
Income Statement

Sales	$20
Cost of merchandise sold	12
Gross profit	$ 8

Balance Sheet

Merchandise inventory	$24

EXHIBIT 2 Use of Inventory Costing Methods*



Source: *Accounting Trends and Techniques*, 63rd edition, 2009 (New York: American Institute of Certified Public Accountants).
*Firms may be counted more than once for using multiple methods.

Example Exercise 7-1 Cost Flow Methods

OBJ. 2

Three identical units of Item QBM are purchased during February, as shown below.

	Item QBM	Units	Cost
Feb. 8	Purchase	1	$ 45
15	Purchase	1	48
26	Purchase	1	51
Total		3	$144
Average cost per unit			$ 48 ($144 ÷ 3 units)

Assume that one unit is sold on February 27 for $70.

Determine the gross profit for February and ending inventory on February 28 using the (a) first-in, first-out (FIFO); (b) last-in, first-out (LIFO); and (c) average cost methods.

Follow My Example 7-1

	Gross Profit	Ending Inventory
a. First-in, first-out (FIFO)	$25 ($70 – $45)	$99 ($48 + $51)
b. Last-in, first-out (LIFO)	$19 ($70 – $51)	$93 ($45 + $48)
c. Average cost	$22 ($70 – $48)	$96 ($48 × 2)

Practice Exercises: **PE 7-1A, PE 7-1B**

OBJ 3 Determine the cost of inventory under the perpetual inventory system, using the FIFO, LIFO, and average cost methods.

Inventory Costing Methods Under a Perpetual Inventory System

As illustrated in the prior section, when identical units of an item are purchased at different unit costs, an inventory cost flow method must be used. This is true regardless of whether the perpetual or periodic inventory system is used.

In this section, the FIFO, LIFO, and average cost methods are illustrated under a perpetual inventory system. For purposes of illustration, the data for Item 127B are used, as shown below.

		Item 127B	Units	Cost
Jan.	1	Inventory	100	$20
	4	Sale at $30 per unit	70	
	10	Purchase	80	21
	22	Sale at $30 per unit	40	
	28	Sale at $30 per unit	20	
	30	Purchase	100	22

Although e-tailers, such as eToys Direct, Inc., Amazon.com, and Furniture.com, Inc., don't have retail stores, they still take possession of inventory in warehouses. Thus, they must account for inventory as illustrated in this chapter.

First-In, First-Out Method

When the FIFO method is used, costs are included in cost of merchandise sold in the order in which they were purchased. This is often the same as the physical flow of the merchandise. Thus, the FIFO method often provides results that are about the same as those that would have been obtained using the specific identification method. For example, grocery stores shelve milk and other perishable products by expiration dates. Products with early expiration dates are stocked in front. In this way, the oldest products (earliest purchases) are sold first.

To illustrate, Exhibit 3 shows use of FIFO under a perpetual inventory system for Item 127B. The journal entries and the subsidiary inventory ledger for Item 127B are shown in Exhibit 3 as follows:

1. The beginning balance on January 1 is $2,000 (100 units at a unit cost of $20).
2. On January 4, 70 units were sold at a price of $30 each for sales of $2,100 (70 units × $30). The cost of merchandise sold is $1,400 (70 units at a unit cost of $20). After the sale, there remains $600 of inventory (30 units at a unit cost of $20).

EXHIBIT 3 **Entries and Perpetual Inventory Account (FIFO)**

Jan. 4	Accounts Receivable	2,100	
	Sales		2,100
4	Cost of Merchandise Sold	1,400	
	Merchandise Inventory		1,400
10	Merchandise Inventory	1,680	
	Accounts Payable		1,680
22	Accounts Receivable	1,200	
	Sales		1,200
22	Cost of Merchandise Sold	810	
	Merchandise Inventory		810
28	Accounts Receivable	600	
	Sales		600
28	Cost of Merchandise Sold	420	
	Merchandise Inventory		420
30	Merchandise Inventory	2,200	
	Accounts Payable		2,200

	Purchases			Cost of Merchandise Sold			Inventory		
Date	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Jan. 1							100	20	2,000
4				70	20	1,400	30	20	600
10	80	21	1,680				30	20	600
							80	21	1,680
22				30	20	600			
				10	21	210	70	21	1,470
28				20	21	420	50	21	1,050
30	100	22	2,200				50	21	1,050
							100	22	2,200
31	Balances					2,630			3,250

Cost of merchandise sold

January 31 inventory

3. On January 10, $1,680 is purchased (80 units at a unit cost of $21). After the purchase, the inventory is reported on two lines, $600 (30 units at a unit cost of $20) from the beginning inventory and $1,680 (80 units at a unit cost of $21) from the January 10 purchase.
4. On January 22, 40 units are sold at a price of $30 each for sales of $1,200 (40 units × $30). Using FIFO, the cost of merchandise sold of $810 consists of $600 (30 units at a unit cost of $20) from the beginning inventory plus $210 (10 units at a unit cost of $21) from the January 10 purchase. After the sale, there remains $1,470 of inventory (70 units at a unit cost of $21) from the January 10 purchase.
5. The January 28 sale and January 30 purchase are recorded in a similar manner.
6. The ending balance on January 31 is $3,250. This balance is made up of two layers of inventory as follows:

	Date of Purchase	Quantity	Unit Cost	Total Cost
Layer 1:	Jan. 10	50	$21	$1,050
Layer 2:	Jan. 30	100	22	2,200
Total		150		$3,250

Example Exercise 7-2 Perpetual Inventory Using FIFO

OBJ 3

Beginning inventory, purchases, and sales for Item ER27 are as follows:

Nov. 1	Inventory	40 units at $5
5	Sale	32 units
11	Purchase	60 units at $7
21	Sale	45 units

Assuming a perpetual inventory system and using the first-in, first-out (FIFO) method, determine (a) the cost of merchandise sold on November 21 and (b) the inventory on November 30.

Follow My Example 7-2

a. Cost of merchandise sold (November 21):

8 units at $5	$ 40
37 units at $7	259
45 units	$299

b. Inventory, November 30:
$161 = (23 units × $7)

Practice Exercises: **PE 7-2A, PE 7-2B**

Last-In, First-Out Method

IFRS IFRS
See Appendix D for more information

When the LIFO method is used, the cost of the units sold is the cost of the most recent purchases. The LIFO method was originally used in those rare cases where the units sold were taken from the most recently purchased units. However, for tax purposes, LIFO is now widely used even when it does not represent the physical flow of units. The tax impact of LIFO is discussed later in this chapter.

To illustrate, Exhibit 4 shows the use of LIFO under a perpetual inventory system for Item 127B. The journal entries and the subsidiary inventory ledger for Item 127B are shown in Exhibit 4 as follows:

1. The beginning balance on January 1 is $2,000 (100 units at a unit of cost of $20).
2. On January 4, 70 units were sold at a price of $30 each for sales of $2,100 (70 units × $30). The cost of merchandise sold is $1,400 (70 units at a unit cost of $20). After the sale, there remains $600 of inventory (30 units at a unit cost of $20).
3. On January 10, $1,680 is purchased (80 units at a unit cost of $21). After the purchase, the inventory is reported on two lines, $600 (30 units at a unit cost of $20) from the beginning inventory and $1,680 (80 units at $21 per unit) from the January 10 purchase.
4. On January 22, 40 units are sold at a price of $30 each for sales of $1,200 (40 units × $30). Using LIFO, the cost of merchandise sold is $840 (40 units at unit cost of $21) from the January 10 purchase. After the sale, there remains $1,440 of inventory consisting of $600 (30 units at a unit cost of $20) from the beginning inventory and $840 (40 units at a unit cost of $21) from the January 10 purchase.

EXHIBIT 4 Entries and Perpetual Inventory Account (LIFO)

Jan. 4	Accounts Receivable	2,100	
	Sales		2,100
4	Cost of Merchandise Sold	1,400	
	Merchandise Inventory		1,400

10	Merchandise Inventory	1,680	
	Accounts Payable		1,680

22	Accounts Receivable	1,200	
	Sales		1,200
22	Cost of Merchandise Sold	840	
	Merchandise Inventory		840

28	Accounts Receivable	600	
	Sales		600
28	Cost of Merchandise Sold	420	
	Merchandise Inventory		420

30	Merchandise Inventory	2,200	
	Accounts Payable		2,200

Item 127B

	Purchases			Cost of Merchandise Sold			Inventory		
Date	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
Jan. 1							100	20	2,000
4				70	20	1,400	30	20	600
10	80	21	1,680				30	20	600
							80	21	1,680
22				40	21	840	30	20	600
							40	21	840
28				20	21	420	30	20	600
							20	21	420
30	100	22	2,200				30	20	600
							20	21	420
							100	22	2,200
31	Balances					2,660			3,220

Cost of merchandise sold

January 31 inventory

5. The January 28 sale and January 30 purchase are recorded in a similar manner.
6. The ending balance on January 31 is $3,220. This balance is made up of three layers of inventory as follows:

	Date of Purchase	Quantity	Unit Cost	Total Cost
Layer 1:	Beg. inv. (Jan. 1)	30	$20	$ 600
Layer 2:	Jan. 10	20	21	420
Layer 3:	Jan. 30	100	22	2,200
Total		150		$3,220

When the LIFO method is used, the subsidiary inventory ledger is sometimes maintained in units only. The units are converted to dollars when the financial statements are prepared at the end of the period.

Example Exercise 7-3 Perpetual Inventory Using LIFO

OBJ 3

Beginning inventory, purchases, and sales for Item ER27 are as follows:

Nov.	1	Inventory	40 units at $5
	5	Sale	32 units
	11	Purchase	60 units at $7
	21	Sale	45 units

Assuming a perpetual inventory system and using the last-in, first-out (LIFO) method, determine (a) the cost of the merchandise sold on November 21 and (b) the inventory on November 30.

Follow My Example 7-3

a. Cost of merchandise sold (November 21):
$315 = (45 units × $7)

b. Inventory, November 30:

8 units at $5	$ 40
15 units at $7	105
23 units	$145

Practice Exercises: **PE 7-3A, PE 7-3B**

International Connection

INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS)

IFRS permit the first-in, first-out and average cost methods but prohibit the last-in, first-out (LIFO) method for determining inventory costs. Since LIFO is used in the United States, adoption of IFRS could have a significant impact on many U.S. companies. For example, Caterpillar Inc. uses LIFO and reported that its inventories would have been $3,003 million higher in 2009 if FIFO had been used. Since Caterpillar reported profits of only $895 million in 2009, the adoption of IFRS would have resulted in a loss in 2009 if IFRS and FIFO had been used.*

* Differences between U.S. GAAP and IFRS are further discussed and illustrated in Appendix D.

Average Cost Method

When the average cost method is used in a perpetual inventory system, an average unit cost for each item is computed each time a purchase is made. This unit cost is used to determine the cost of each sale until another purchase is made and a new average is computed. This technique is called a *moving average.* Since the average cost method is rarely used in a perpetual inventory system, it is not illustrated.

Computerized Perpetual Inventory Systems

A perpetual inventory system may be used in a manual accounting system. However, if there are many inventory transactions, such a system is costly and time consuming. In most cases, perpetual inventory systems are computerized.

Computerized perpetual inventory systems are useful to managers in controlling and managing inventory. For example, fast-selling items can be reordered before the stock runs out. Sales patterns can also be analyzed to determine when to mark down merchandise or when to restock seasonal merchandise. Finally, inventory data can be used in evaluating advertising campaigns and sales promotions.

Inventory Costing Methods Under a Periodic Inventory System

OBJ. 4 Determine the cost of inventory under the periodic inventory system, using the FIFO, LIFO, and average cost methods.

When the periodic inventory system is used, only revenue is recorded each time a sale is made. No entry is made at the time of the sale to record the cost of the merchandise sold. At the end of the accounting period, a physical inventory is taken to determine the cost of the inventory and the cost of the merchandise sold.[2]

Like the perpetual inventory system, a cost flow assumption must be made when identical units are acquired at different unit costs during a period. In such cases, the FIFO, LIFO, or average cost method is used.

First-In, First-Out Method

To illustrate the use of the FIFO method in a periodic inventory system, we use the same data for Item 127B as in the perpetual inventory example. The beginning inventory entry and purchases of Item 127B in January are as follows:

Jan. 1	inventory	100 units at	$20	$2,000
10	Purchase	80 units at	21	1,680
30	Purchase	100 units at	22	2,200
Available for sale during month		280		$5,880

---

[2] Determining the cost of merchandise sold using the periodic system was illustrated in the appendix to Chapter 6.

The physical count on January 31 shows that 150 units are on hand. Using the FIFO method, the cost of the merchandise on hand at the end of the period is made up of the most recent costs. The cost of the 150 units in ending inventory on January 31 is determined as follows:

Most recent costs, January 30 purchase	100 units at	$22	$2,200
Next most recent costs, January 10 purchase	50 units at	$21	1,050
Inventory, January 31	150 units		$3,250

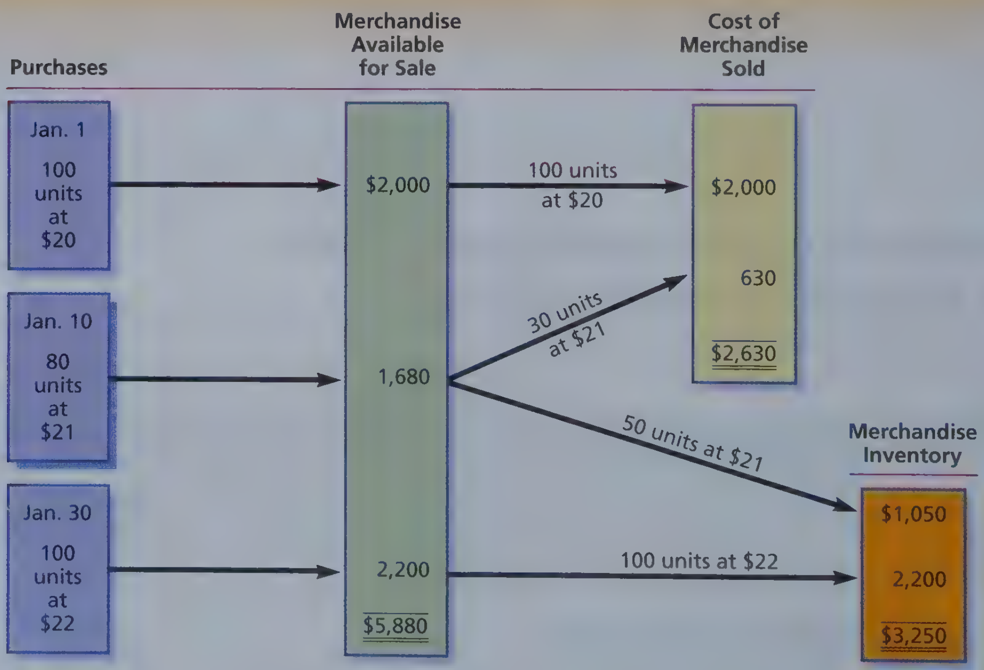
Deducting the cost of the January 31 inventory of $3,250 from the cost of merchandise available for sale of $5,880 yields the cost of merchandise sold of $2,630, as shown below.

Beginning inventory, January 1	$2,000
Purchases ($1,680 + $2,200)	3,880
Cost of merchandise available for sale in January	$5,880
Less ending inventory, January 31	3,250
Cost of merchandise sold	$2,630

The $3,250 cost of the ending merchandise inventory on January 31 is made up of the most recent costs. The $2,630 cost of merchandise sold is made up of the beginning inventory and the earliest costs. Exhibit 5 shows the relationship of the cost of merchandise sold for January and the ending inventory on January 31.

EXHIBIT 5

First-In, First-Out Flow of Costs



Last-In, First-Out Method

When the LIFO method is used, the cost of merchandise on hand at the end of the period is made up of the earliest costs. Based on the same data as in the FIFO example, the cost of the 150 units in ending inventory on January 31 is determined as follows:

IFRS IFRS

See Appendix D for more information

Beginning inventory, January 1	100 units at	$20	$2,000
Next earliest costs, January 10	50 units at	$21	1,050
Inventory, January 31	150 units		$3,050

Deducting the cost of the January 31 inventory of $3,050 from the cost of merchandise available for sale of $5,880 yields the cost of merchandise sold of $2,830, as shown below.

Beginning inventory, January 1	$2,000
Purchases ($1,680 + $2,200)	3,880
Cost of merchandise available for sale in January	$5,880
Less ending inventory, January 31	3,050
Cost of merchandise sold	$2,830

The $3,050 cost of the ending merchandise inventory on January 31 is made up of the earliest costs. The $2,830 cost of merchandise sold is made up of the most recent costs. Exhibit 6 shows the relationship of the cost of merchandise sold for January and the ending inventory on January 31.

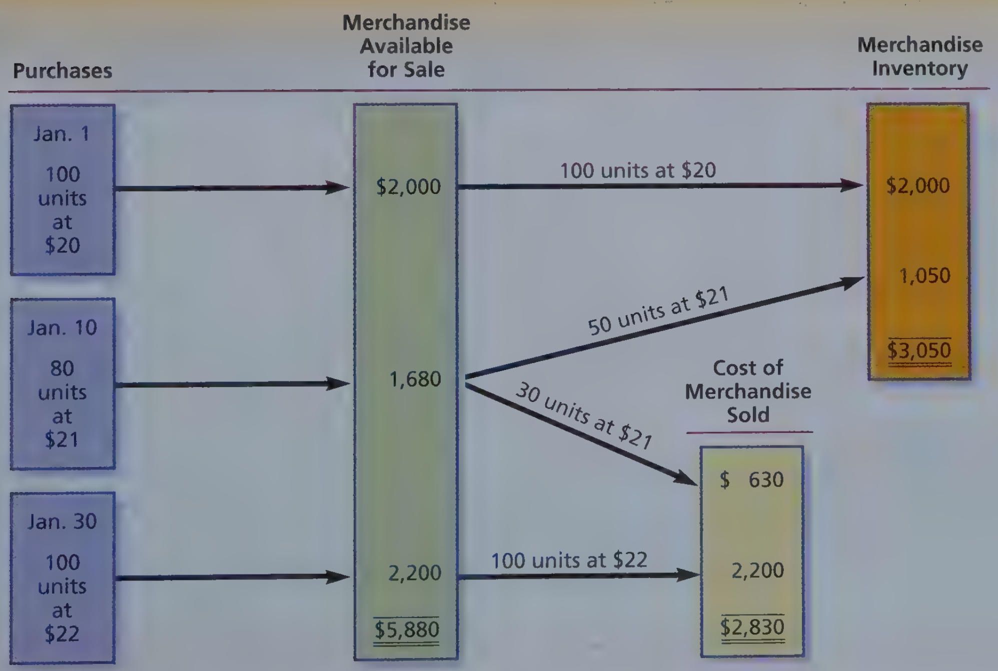


EXHIBIT 6

Last-In, First-Out Flow of Costs

Average Cost Method

The average cost method is sometimes called the *weighted average method*. The average cost method uses the average unit cost for determining cost of merchandise sold and the ending merchandise inventory. If purchases are relatively uniform during a period, the average cost method provides results that are similar to the physical flow of goods.

The weighted average unit cost is determined as follows:

$$\text{Average Unit Cost} = \frac{\text{Total Cost of Units Available for Sale}}{\text{Units Available for Sale}}$$

To illustrate, we use the data for Item 127B as follows:

$$\text{Average Unit Cost} = \frac{\text{Total Cost of Units Available for Sale}}{\text{Units Available for Sale}} = \frac{\$5{,}880}{280 \text{ units}}$$

$$= \$21 \text{ per unit}$$

The cost of the January 31 ending inventory is as follows:

Inventory, January 31: $3,150 (150 units × $21)

Deducting the cost of the January 31 inventory of $3,150 from the cost of merchandise available for sale of $5,880 yields the cost of merchandise sold of $2,730, as shown below.

Beginning inventory, January 1	$2,000
Purchases ($1,680 + $2,200)	3,880
Cost of merchandise available for sale in January	$5,880
Less ending inventory, January 31	3,150
Cost of merchandise sold	$2,730

The cost of merchandise sold could also be computed by multiplying the number of units sold by the average cost as follows:

Cost of merchandise sold: $2,730 (130 units × $21)

Example Exercise 7-4 Periodic Inventory Using FIFO, LIFO, Average Cost Methods

OBJ. 4

The units of an item available for sale during the year were as follows:

Jan.	1	Inventory	6 units at $50	$ 300
Mar.	20	Purchase	14 units at $55	770
Oct.	30	Purchase	20 units at $62	1,240
Available for sale			40 units	$2,310

There are 16 units of the item in the physical inventory at December 31. The periodic inventory system is used. Determine the inventory cost using (a) the first-in, first-out (FIFO) method, (b) the last-in, first-out (LIFO) method, and (c) the average cost method.

Follow My Example 7-4

a. First-in, first-out (FIFO) method: $992 = (16 units × $62)
b. Last-in, first-out (LIFO) method: $850 = (6 units × $50) + (10 units × $55)
c. Average cost method: $924 (16 units × $57.75), where average cost = $57.75 = $2,310/40 units

Practice Exercises: **PE 7-4A, PE 7-4B**

OBJ. 5 Compare and contrast the use of the three inventory costing methods.

Comparing Inventory Costing Methods

A different cost flow is assumed for the FIFO, LIFO, and average inventory cost flow methods. As a result, the three methods normally yield different amounts for the following:

1. Cost of merchandise sold
2. Gross profit
3. Net income
4. Ending merchandise inventory

Using the periodic inventory system illustration with sales of $3,900 (130 units × $30), these differences are illustrated below.[3]

IFRS IFRS

See Appendix D for more information

Partial Income Statements

	First-In, First-Out		Average Cost		Last-In, First-Out	
Net sales		$3,900		$3,900		$3,900
Cost of merchandise sold:						
Beginning inventory	$2,000		$2,000		$2,000	
Purchases	3,880		3,880		3,880	
Merchandise available for sale	$5,880		$5,880		$5,880	
Less ending inventory	3,250		3,150		3,050	
Cost of merchandise sold		2,630		2,730		2,830
Gross profit		$1,270		$1,170		$1,070

The preceding differences show the effect of increasing costs (prices). If costs (prices) remain the same, all three methods would yield the same results. However, costs (prices) normally do change. The effects of changing costs (prices) on the FIFO and LIFO methods are summarized in Exhibit 7. The average cost method will always yield results between those of FIFO and LIFO.

FIFO reports higher gross profit and net income than the LIFO method when costs (prices) are increasing, as shown in Exhibit 7. However, in periods of rapidly rising costs, the inventory that is sold must be replaced at increasingly higher costs. In such cases, the larger FIFO gross profit and net income are sometimes called *inventory profits* or *illusory profits*.

During a period of increasing costs, LIFO matches more recent costs against sales on the income statement. Thus, it can be argued that the LIFO method more nearly matches current costs with current revenues. LIFO also offers an income tax savings during periods of increasing costs. This is because LIFO reports the lowest amount of gross profit and, thus, taxable net income.[4] However, under LIFO, the ending inventory on the balance sheet may be quite different from its current replacement cost. In such cases, the financial statements normally include a note that estimates what the inventory would have been if FIFO had been used.

The average cost method is, in a sense, a compromise between FIFO and LIFO. The effect of cost (price) trends is averaged in determining the cost of merchandise sold and the ending inventory. For a series of purchases, the average cost will be the same, regardless of whether costs are increasing or decreasing. For example, reversing the sequence of unit costs presented in the prior illustration does not affect the average unit cost nor the amounts reported for cost of merchandise sold, gross profit, or ending inventory.

EXHIBIT 7

Effects of Changing Costs (Prices): FIFO and LIFO Cost Methods

	Increasing Costs (Prices)		Decreasing Costs (Prices)	
	Highest Amount	Lowest Amount	Highest Amount	Lowest Amount
Cost of merchandise sold	LIFO	FIFO	FIFO	LIFO
Gross profit	FIFO	LIFO	LIFO	FIFO
Net income	FIFO	LIFO	LIFO	FIFO
Ending merchandise inventory	FIFO	LIFO	LIFO	FIFO

---

[3] Similar results would also occur when comparing inventory costing methods under a perpetual inventory system.

[4] A proposal currently exists before the U.S. Congress to not allow the use of LIFO for tax purposes.

Integrity, Objectivity, and Ethics in Business

WHERE'S THE BONUS?

Managers are often given bonuses based on reported earnings numbers. This can create a conflict. LIFO can improve the value of the company through lower taxes. However, in periods of rising costs (prices), LIFO also produces a lower earnings number and, therefore, lower management bonuses. Ethically, managers should select accounting procedures that will maximize the value of the firm, rather than their own compensation. Compensation specialists can help avoid this ethical dilemma by adjusting the bonus plan for the accounting procedure differences.

OBJ. 6 Describe and illustrate the reporting of merchandise inventory in the financial statements.

Reporting Merchandise Inventory in the Financial Statements

Cost is the primary basis for valuing and reporting inventories in the financial statements. However, inventory may be valued at other than cost in the following cases:

1. The cost of replacing items in inventory is below the recorded cost.
2. The inventory cannot be sold at normal prices due to imperfections, style changes, or other causes.

Valuation at Lower of Cost or Market

IFRS IFRS See Appendix D for more information

If the cost of replacing inventory is lower than its recorded purchase cost, the **lower-of-cost-or-market (LCM) method** is used to value the inventory. *Market,* as used in *lower of cost or market*, is the cost to replace the inventory. The market value is based on normal quantities that would be purchased from suppliers.

The lower-of-cost-or-market method can be applied in one of three ways. The cost, market price, and any declines could be determined for the following:

1. Each item in the inventory.
2. Each major class or category of inventory.
3. Total inventory as a whole.

The amount of any price decline is included in the cost of merchandise sold. This, in turn, reduces gross profit and net income in the period in which the price declines occur. This matching of price declines to the period in which they occur is the primary advantage of using the lower-of-cost-or-market method.

To illustrate, assume the following data for 400 identical units of Item A in inventory on December 31, 2012:

Unit purchased cost	$10.25
Replacement cost on December 31, 2012	9.50

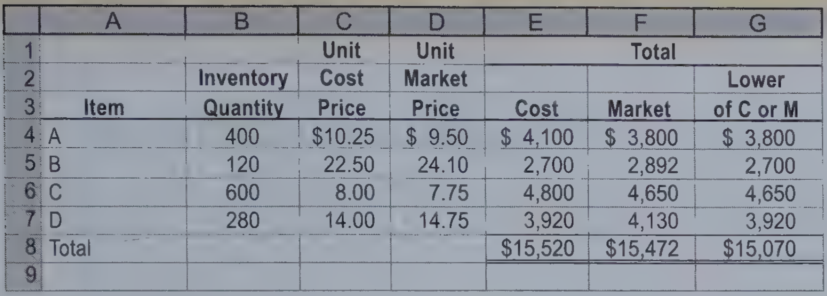
Since Item A could be replaced at $9.50 a unit, $9.50 is used under the lower-of-cost-or-market method.

Exhibit 8 illustrates applying the lower-of-cost-or-market method to each inventory item (A, B, C, and D). As applied on an item-by-item basis, the total lower-of-cost-or-market is $15,070, which is a market decline of $450 ($15,520 – $15,070). This market decline of $450 is included in the cost of merchandise sold.

In Exhibit 8, Items A, B, C, and D could be viewed as a class of inventory items. If the lower-of-cost-or-market method is applied to the class, the inventory would be valued at $15,472, which is a market decline of $48 ($15,520 – $15,472). Likewise, if Items A, B, C, and D make up the total inventory, the lower-of-cost-or-market method as applied to the total inventory would be the same amount, $15,472.

EXHIBIT 8

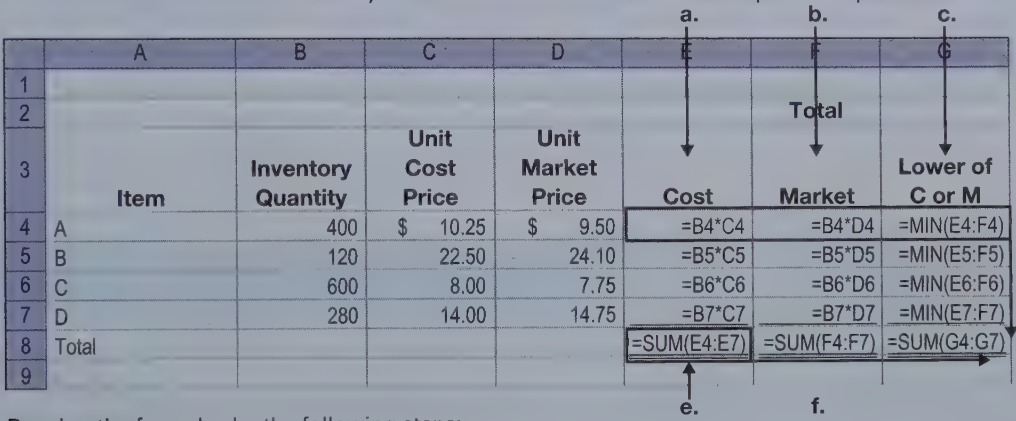
Determining Inventory at Lower of Cost or Market



	A	B	C	D	E	F	G
1			Unit	Unit	Total		
2		Inventory	Cost	Market			Lower
3	Item	Quantity	Price	Price	Cost	Market	of C or M
4	A	400	$10.25	$ 9.50	$ 4,100	$ 3,800	$ 3,800
5	B	120	22.50	24.10	2,700	2,892	2,700
6	C	600	8.00	7.75	4,800	4,650	4,650
7	D	280	14.00	14.75	3,920	4,130	3,920
8	Total				$15,520	$15,472	$15,070
9							

excel success

The lower of cost or market inventory schedule from Exhibit 8 can be developed on a spreadsheet as follows:



	A	B	C	D	E	F	G
1							
2						Total	
3	Item	Inventory Quantity	Unit Cost Price	Unit Market Price	Cost	Market	Lower of C or M
4	A	400	$ 10.25	$ 9.50	=B4*C4	=B4*D4	=MIN(E4:F4)
5	B	120	22.50	24.10	=B5*C5	=B5*D5	=MIN(E5:F5)
6	C	600	8.00	7.75	=B6*C6	=B6*D6	=MIN(E6:F6)
7	D	280	14.00	14.75	=B7*C7	=B7*D7	=MIN(E7:F7)
8	Total				=SUM(E4:E7)	=SUM(F4:F7)	=SUM(G4:G7)
9							

Copy cells by using the fill handle in the corner of the cell to be copied and dragging to the target cells.

Develop the formulas by the following steps:

a. Enter in cell E4 the formula for the total cost, =B4*C4.
b. Enter in cell F4 the formula for the total market, =B4*D4.
c. Enter in cell G4 a =MIN function to calculate the lower of cost or market, as follows:

=MIN(E4:F4)

This function will return the minimum value within the range of cells from E4 to F4.

d. Copy E4:G4 to E5:G7.
e. Enter in E8 a formula to sum the column, =SUM(E4:E7)
f. Copy E8 to F8:G8

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

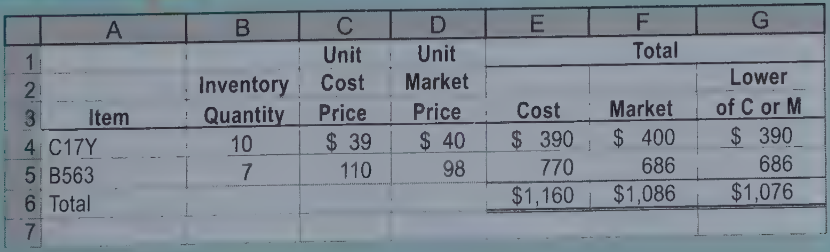
Example Exercise 7-5 Lower-of-Cost-or-Market Method

OBJ. 6

On the basis of the following data, determine the value of the inventory at the lower of cost or market. Apply lower of cost or market to each inventory item as shown in Exhibit 8.

Item	Inventory Quantity	Unit Cost Price	Unit Market Price
C17Y	10	$ 39	$40
B563	7	110	98

Follow My Example 7-5



	A	B	C	D	E	F	G
1			Unit	Unit	Total		
2		Inventory	Cost	Market			Lower
3	Item	Quantity	Price	Price	Cost	Market	of C or M
4	C17Y	10	$ 39	$ 40	$ 390	$ 400	$ 390
5	B563	7	110	98	770	686	686
6	Total				$1,160	$1,086	$1,076
7							

Practice Exercises: **PE 7-5A, PE 7-5B**

Valuation at Net Realizable Value

Merchandise that is out of date, spoiled, or damaged can often be sold only at a price below its original cost. Such merchandise should be valued at its **net realizable value**. Net realizable value is determined as follows:

Net Realizable Value = Estimated Selling Price – Direct Costs of Disposal

Direct costs of disposal include selling expenses such as special advertising or sales commissions. To illustrate, assume the following data about an item of damaged merchandise:

Original cost	$1,000
Estimated selling price	800
Selling expenses	150

The merchandise should be valued at its net realizable value of $650 as shown below.

Net Realizable Value = $800 – $150 = $650

BusinessConnection

INVENTORY WRITE-DOWNS

Worthington Industries, Inc., is a diversified metal processing company that manufactures metal products, such as metal framing and pressure cylinders. During the year ended May 31, 2009, the company experienced rapidly changing business conditions. Due to the global financial crisis and recession, steel prices underwent a severe and rapid decline. As a result, the company recorded an inventory write-down of $105 million and an overall net loss of $108 million for the year.

Merchandise Inventory on the Balance Sheet

IFRS IFRS

See Appendix D for more information

Merchandise inventory is usually reported in the Current Assets section of the balance sheet. In addition to this amount, the following are reported:

1. The method of determining the cost of the inventory (FIFO, LIFO, or average)
2. The method of valuing the inventory (cost or the lower of cost or market)

The financial statement reporting for the topics covered in Chapters 7–15 are illustrated using excerpts from the financial statements of Mornin' Joe. Mornin' Joe is a fictitious company that offers drip and espresso coffee in a coffeehouse setting. The complete financial statements of Mornin' Joe are illustrated at the end of Chapter 15 (pages 711–718).

The balance sheet presentation for merchandise inventory for Mornin' Joe is as follows:

Mornin' Joe
Balance Sheet
December 31, 2012

Current assets:		
Cash and cash equivalents		$235,000
Trading investments (at cost)	$420,000	
Plus valuation allowance on trading investments	45,000	465,000
Accounts receivable	$305,000	
Less allowance for doubtful accounts	12,300	292,700
Merchandise inventory—at lower of cost (first-in, first-out method) or market		120,000

It is not unusual for a large business to use different costing methods for segments of its inventories. Also, a business may change its inventory costing method. In such cases, the effect of the change and the reason for the change are disclosed in the financial statements.

Effect of Inventory Errors on the Financial Statements

Any errors in merchandise inventory will affect the balance sheet and income statement. Some reasons that inventory errors may occur include the following:

1. Physical inventory on hand was miscounted.
2. Costs were incorrectly assigned to inventory. For example, the FIFO, LIFO, or average cost method was incorrectly applied.
3. Inventory in transit was incorrectly included or excluded from inventory.
4. Consigned inventory was incorrectly included or excluded from inventory.

Inventory errors often arise from merchandise that is in transit at year-end. As discussed in Chapter 6, shipping terms determine when the title to merchandise passes. When goods are purchased or sold *FOB shipping point*, title passes to the buyer when the goods are shipped. When the terms are *FOB destination*, title passes to the buyer when the goods are received.

To illustrate, assume that SysExpress ordered the following merchandise from American Products:

Date ordered:	December 27, 2011
Amount:	$10,000
Terms:	FOB shipping point, 2/10, n/30
Date shipped by seller:	December 30
Date delivered:	January 3, 2012

When SysExpress counts its physical inventory on December 31, 2011, the merchandise is still in transit. In such cases, it would be easy for SysExpress to not include the $10,000 of merchandise in its December 31 physical inventory. However, since the merchandise was purchased *FOB shipping point*, SysExpress owns the merchandise. Thus, it should be included in the ending December 31 inventory even though it is not on hand. Likewise, any merchandise *sold* by SysExpress *FOB destination* is still SysExpress's inventory even if it is in transit to the buyer on December 31.

Inventory errors often arise from **consigned inventory**. Manufacturers sometimes ship merchandise to retailers who act as the manufacturer's selling agent. The manufacturer, called the **consignor**, retains title until the goods are sold. Such merchandise is said to be shipped *on consignment* to the retailer, called the **consignee**. Any unsold merchandise at year-end is a part of the manufacturer's (consignor's) inventory, even though the merchandise is in the hands of the retailer (consignee). At year-end, it would be easy for the retailer (consignee) to incorrectly include the consigned merchandise in its physical inventory. Likewise, the manufacturer (consignor) should include consigned inventory in its physical inventory even though the inventory is not on hand.

Income Statement Effects Inventory errors will misstate the income statement amounts for cost of merchandise sold, gross profit, and net income. The effects of inventory errors on the current period's income statement are summarized in Exhibit 9.

EXHIBIT 9

Effect of Inventory Errors on Current Period's Income Statement

	Income Statement Effect		
Inventory Error	**Cost of Merchandise Sold**	**Gross Profit**	**Net Income**
Beginning inventory is:			
Understated	*Understated*	*Overstated*	*Overstated*
Overstated	*Overstated*	*Understated*	*Understated*
Ending inventory is:			
Understated	*Overstated*	*Understated*	*Understated*
Overstated	*Understated*	*Overstated*	*Overstated*

To illustrate, the income statements of SysExpress shown in Exhibit 10 are used.[5] On December 31, 2011, assume that SysExpress incorrectly records its physical inventory as $50,000 instead of the correct amount of $60,000. Thus, the December 31, 2011, inventory is understated by $10,000 ($60,000 – $50,000). As a result, the cost of merchandise sold is overstated by $10,000. The gross profit and the net income for the year will also be understated by $10,000.

EXHIBIT 10 **Effects of Inventory Errors on Two Years' Income Statements**

SysExpress
Income Statement
For the Years Ended December 31, 2011 and 2012

	2011				2012			
	Correct		Incorrect		Incorrect		Correct	
Net sales		$980,000		$980,000		$ 1,100,000		$1,100,000
Merchandise inventory, January 1	$ 55,000		$ 55,000		$ 50,000		$ 60,000	
Purchases	650,000		650,000		700,000		700,000	
Merchandise available for sale	$705,000		$705,000		$750,000		$760,000	
Less merchandise inventory, December 31	60,000		50,000		70,000		70,000	
Cost of merchandise sold		645,000		655,000		680,000		690,000
Gross profit		$335,000		$325,000		$ 420,000		$ 410,000
Operating expenses		100,000		100,000		120,000		120,000
Net income		$235,000		$225,000		$ 300,000		$ 290,000

$10,000
Understatement
of Net Income

$10,000
Overstatement
of Net Income

Net Effect Is Zero for Two Years
The inventory errors reverse (or cancel) so that the combined net income for the two years of $525,000 ($225,000 + $300,000) is correct.

The December 31, 2011, merchandise inventory becomes the January 1, 2012, inventory. Thus, the beginning inventory for 2012 is understated by $10,000. As a result, the cost of merchandise sold is understated by $10,000 for 2012. The gross profit and net income for 2012 will be overstated by $10,000.

As shown in Exhibit 10, since the ending inventory of one period is the beginning inventory of the next period, the effects of inventory errors carry forward to the next period. Specifically, if uncorrected, the effects of inventory errors reverse themselves in the next period. In Exhibit 10, the combined net income for the two years of $525,000 is correct even though the 2011 and 2012 income statements were incorrect.

Balance Sheet Effects Inventory errors misstate the merchandise inventory, current assets, total assets, and owner's equity on the balance sheet. The effects of inventory errors on the current period's balance sheet are summarized in Exhibit 11.

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[5] The effect of inventory errors will be illustrated using the periodic system. This is because it is easier to see the impact of inventory errors on the income statement using the periodic system. The effect of inventory errors would be the same under the perpetual inventory system.

EXHIBIT 11

Effect of Inventory Errors on Current Period's Balance Sheet

	Balance Sheet Effect			
Ending Inventory Error	**Merchandise Inventory**	**Current Assets**	**Total Assets**	**Owner's Equity (Capital)**
Understated	*Understated*	*Understated*	*Understated*	*Understated*
Overstated	*Overstated*	*Overstated*	*Overstated*	*Overstated*

For the SysExpress illustration shown in Exhibit 10, the December 31, 2011, ending inventory was understated by $10,000. As a result, the merchandise inventory, current assets, and total assets would be understated by $10,000 on the December 31, 2011, balance sheet. Because the ending physical inventory is understated, the cost of merchandise sold for 2011 will be overstated by $10,000. Thus, the gross profit and the net income for 2011 are understated by $10,000. Since the net income is closed to owner's equity (capital) at the end of the period, the owner's equity on the December 31, 2011, balance sheet is also understated by $10,000.

As discussed above, inventory errors reverse themselves within two years. As a result, the balance sheet will be correct as of December 31, 2012. Using the SysExpress illustration from Exhibit 10, these effects are summarized below.

	Amount of Misstatement	
Balance Sheet:	December 31, 2011	December 31, 2012
Merchandise inventory overstated (understated)	$(10,000)	Correct
Current assets overstated (understated)	(10,000)	Correct
Total assets overstated (understated)	(10,000)	Correct
Owner's equity overstated (understated)	(10,000)	Correct
Income Statement:	2011	2012
Cost of merchandise sold overstated (understated)	$ 10,000	$(10,000)
Gross profit overstated (understated)	(10,000)	10,000
Net income overstated (understated)	(10,000)	10,000

Example Exercise 7-6 Effect of Inventory Errors

Zula Repair Shop incorrectly counted its December 31, 2012, inventory as $250,000 instead of the correct amount of $220,000. Indicate the effect of the misstatement on Zula's December 31, 2012, balance sheet and income statement for the year ended December 31, 2012.

Follow My Example 7-6

	Amount of Misstatement Overstatement (Understatement)
Balance Sheet:	
Merchandise inventory overstated	$ 30,000
Current assets overstated	30,000
Total assets overstated	30,000
Owner's equity overstated	30,000
Income Statement:	
Cost of merchandise sold understated	$(30,000)
Gross profit overstated	30,000
Net income overstated	30,000

Practice Exercises: PE 7-6A, PE 7-6B

Business Connection

RAPID INVENTORY AT COSTCO

Costco Wholesale Corporation operates over 500 membership warehouses that offer members low prices on a limited selection of nationally branded and selected private label products. Costco emphasizes high sales volumes and rapid inventory turnover. This enables Costco to operate profitably at lower gross margins than traditional wholesalers, discount retailers, and supermarkets. In addition, Costco's rapid inventory turnover allows it to conserve its working capital, as described below.

> *Because of our high sales volume and rapid inventory turnover, we generally have the opportunity to sell and be paid for inventory before we are required to pay … our merchandise vendors.… As sales increase and inventory turnover becomes more rapid, a greater percentage of inventory is financed through payment terms provided by suppliers rather than by our working capital.*

© Don Ryan/AP Images

Source: Costco Wholesale Corporation, Annual Report on Form 10-K for the fiscal year ended August 31, 2009.

F·A·I

OBJ. 7 Describe and illustrate the inventory turnover and the number of days' sales in inventory in analyzing the efficiency and effectiveness of inventory management.

Financial Analysis and Interpretation: Inventory Turnover and Number of Days' Sales in Inventory

A merchandising business should keep enough inventory on hand to meet its customers' needs. A failure to do so may result in lost sales. However, too much inventory ties up funds that could be used to improve operations. Also, excess inventory increases expenses such as storage and property taxes. Finally, excess inventory increases the risk of losses due to price declines, damage, or changes in customer tastes.

Two measures to analyze the efficiency and effectiveness of inventory management are:

1. inventory turnover and
2. number of days' sales in inventory.

Inventory turnover measures the relationship between cost of merchandise sold and the amount of inventory carried during the period. It is computed as follows:

$$\text{Inventory Turnover} = \frac{\text{Cost of Merchandise Sold}}{\text{Average Inventory}}$$

To illustrate, inventory turnover for Best Buy is computed from the following data (in millions) taken from two recent annual reports.

	For the Year Ended	
	February 28, 2009	**March 1, 2008**
Cost of merchandise sold	$34,017	$30,477
Inventories:		
Beginning of year	4,708	4,028
End of year	4,753	4,708
Average inventory:		
($4,708 + $4,753) ÷ 2	4,731	
($4,028 + $4,708) ÷ 2		4,368
Inventory turnover:		
$34,017 ÷ $4,731	7.2	
$30,477 ÷ $4,368		7.0

Generally, the larger the inventory turnover the more efficient and effective the company is managing inventory. As shown on the previous page, inventory turnover increased from 7.0 to 7.2 during 2009, and thus Best Buy improved its inventory efficiency.

The **number of days' sales in inventory** measures the length of time it takes to acquire, sell, and replace the inventory. It is computed as follows:

$$\text{Number of Days' Sales in Inventory} = \frac{\text{Average Inventory}}{\text{Average Daily Cost of Merchandise Sold}}$$

The average daily cost of merchandise sold is determined by dividing the cost of merchandise sold by 365. Based upon the preceding data, the number of days' sales in inventory for Best Buy is computed below.

	For the Year Ended	
	February 28, 2009	**March 1, 2008**
Cost of merchandise sold	$34,017	$30,477
Average daily cost of merchandise sold:		
$34,017 ÷ 365 days	93	
$30,477 ÷ 365 days		84
Average inventory:		
($4,708 + $4,753) ÷ 2	4,731	
($4,028 + $4,708) ÷ 2		4,368
Number of days' sales in inventory:		
$4,731 ÷ $93	51 days	
$4,368 ÷ $84		52 days

Generally, the lower the number of days' sales in inventory, the more efficient and effective the company is in managing inventory. As shown above, the number of days' sales in inventory decreased from 52 to 51 during 2009, and thus Best Buy improved its inventory management. This is consistent with the increase in inventory during the year.

As with most financial ratios, differences exist among industries. To illustrate, Zale Corporation is a large retailer of fine jewelry in the United States. Since jewelry doesn't sell as rapidly as Best Buy's consumer electronics, Zale's inventory turnover and number of days' sales in inventory should be significantly different than Best Buy's. For 2009, this is confirmed as shown below.

	Best Buy	**Zale**
Inventory turnover	7.2	1.3
Number of days' sales in inventory	51 days	292 days

Example Exercise 7-7 Inventory Turnover and Number of Days' Sales in Inventory

OBJ. 7

Financial statement data for years ending December 31 for Beadle Company are shown below.

	2012	**2011**
Cost of merchandise sold	$877,500	$615,000
Inventories:		
Beginning of year	225,000	225,000
End of year	315,000	185,000

a. Determine inventory turnover for 2012 and 2011.
b. Determine the number of days' sales in inventory for 2012 and 2011.
c. Does the change in inventory turnover and the number of days' sales in inventory from 2011 to 2012 indicate a favorable or an unfavorable trend?

Follow My Example 7-7

a. Inventory turnover:

	2012	2011
Average inventory:		
($225,000 + $315,000) ÷ 2	$270,000	
($185,000 + $225,000) ÷ 2		$205,000
Inventory turnover:		
$877,500 ÷ $270,000	3.25	
$615,000÷ $205,000		3.00

b. Number of days' sales in inventory:

	2012	2011
Average daily cost of merchandise sold:		
$877,500 ÷ 365 days	$2,404	
$615,000 ÷ 365 days		$1,685
Average inventory:		
($225,000 + $315,000) ÷ 2	$270,000	
($185,000 + $225,000) ÷ 2		$205,000
Number of days' sales in inventory:		
$270,000 ÷ $2,404	112.3 days	
$205,000 ÷ $1,685		121.7 days

c. The increase in the inventory turnover from 3.00 to 3.25 and the decrease in the number of days' sales in inventory from 121.7 days to 112.3 days indicate favorable trends in managing inventory.

Practice Exercises: **PE 7-7A, PE 7-7B**

APPENDIX

Estimating Inventory Cost

A business may need to estimate the amount of inventory for the following reasons:

1. Perpetual inventory records are not maintained.
2. A disaster such as a fire or flood has destroyed the inventory records and the inventory.
3. Monthly or quarterly financial statements are needed, but a physical inventory is taken only once a year.

This appendix describes and illustrates two widely used methods of estimating inventory cost.

Retail Method of Inventory Costing

The **retail inventory method** of estimating inventory cost requires costs and retail prices to be maintained for the merchandise available for sale. A ratio of cost to retail price is then used to convert ending inventory at retail to estimate the ending inventory cost.

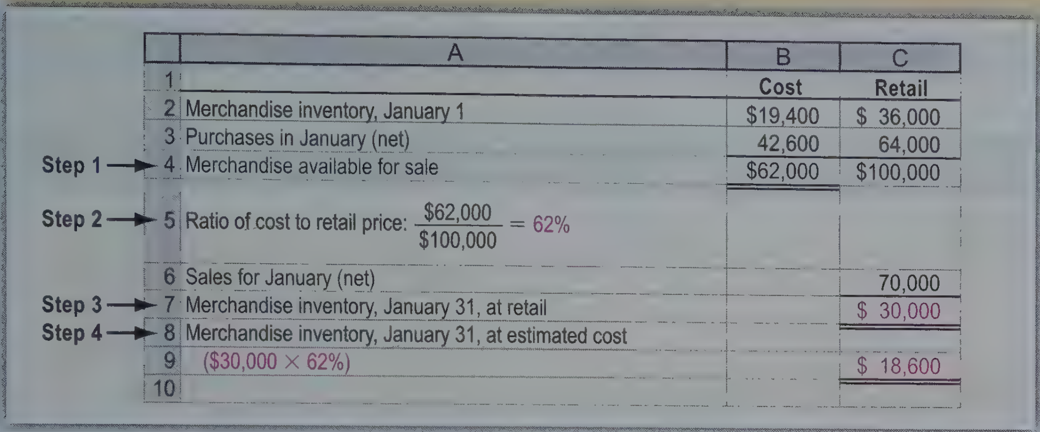
The retail inventory method is applied as follows:

Step 1. Determine the total merchandise available for sale at cost and retail.
Step 2. Determine the ratio of the cost to retail of the merchandise available for sale.
Step 3. Determine the ending inventory at retail by deducting the net sales from the merchandise available for sale at retail.
Step 4. Estimate the ending inventory cost by multiplying the ending inventory at retail by the cost to retail ratio.

Exhibit 12 illustrates the retail inventory method.

EXHIBIT 12

Determining Inventory by the Retail Method



		A	B	C
	1		Cost	Retail
	2	Merchandise inventory, January 1	$19,400	$ 36,000
	3	Purchases in January (net)	42,600	64,000
Step 1 →	4	Merchandise available for sale	$62,000	$100,000
Step 2 →	5	Ratio of cost to retail price: $\frac{\$62,000}{\$100,000} = 62\%$		
	6	Sales for January (net)		70,000
Step 3 →	7	Merchandise inventory, January 31, at retail		$ 30,000
Step 4 →	8	Merchandise inventory, January 31, at estimated cost		
	9	($30,000 × 62%)		$ 18,600
	10			

When estimating the cost to retail ratio, the mix of items in the ending inventory is assumed to be the same as the merchandise available for sale. If the ending inventory is made up of different classes of merchandise, cost to retail ratios may be developed for each class of inventory.

An advantage of the retail method is that it provides inventory figures for preparing monthly statements. Department stores and similar retailers often determine gross profit and operating income each month, but may take a physical inventory only once or twice a year. Thus, the retail method allows management to monitor operations more closely.

The retail method may also be used as an aid in taking a physical inventory. In this case, the items are counted and recorded at their retail (selling) prices instead of their costs. The physical inventory at retail is then converted to cost by using the cost to retail ratio.

Gross Profit Method of Inventory Costing

The **gross profit method** uses the estimated gross profit for the period to estimate the inventory at the end of the period. The gross profit is estimated from the preceding year, adjusted for any current-period changes in the cost and sales prices.

The gross profit method is applied as follows:

Step 1. Determine the merchandise available for sale at cost.

Step 2. Determine the estimated gross profit by multiplying the net sales by the gross profit percentage.

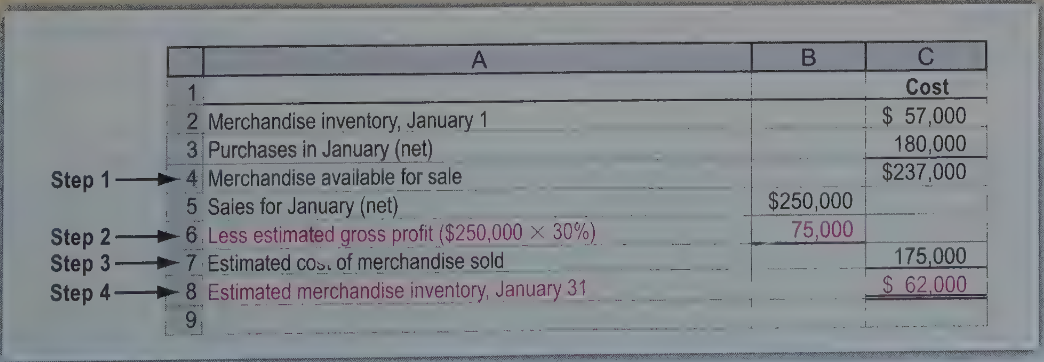
Step 3. Determine the estimated cost of merchandise sold by deducting the estimated gross profit from the net sales.

Step 4. Estimate the ending inventory cost by deducting the estimated cost of merchandise sold from the merchandise available for sale.

Exhibit 13 illustrates the gross profit method.

EXHIBIT 13

Estimating Inventory by Gross Profit Method



		A	B	C
	1			Cost
	2	Merchandise inventory, January 1		$ 57,000
	3	Purchases in January (net)		180,000
Step 1 →	4	Merchandise available for sale		$237,000
	5	Sales for January (net)	$250,000	
Step 2 →	6	Less estimated gross profit ($250,000 × 30%)	75,000	
Step 3 →	7	Estimated cost of merchandise sold		175,000
Step 4 →	8	Estimated merchandise inventory, January 31		$ 62,000
	9			

The gross profit method is useful for estimating inventories for monthly or quarterly financial statements. It is also useful in estimating the cost of merchandise destroyed by fire or other disasters.

At a Glance 7

OBJ. 1 Describe the importance of control over inventory.

Key Points Two objectives of inventory control are safeguarding the inventory and properly reporting it in the financial statements. The perpetual inventory system and physical count enhance control over inventory.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe controls for safeguarding inventory.		
• Describe how a perpetual inventory system enhances control over inventory.		
• Describe why taking a physical inventory enhances control over inventory.		

OBJ. 2 Describe three inventory cost flow assumptions and how they impact the income statement and balance sheet.

Key Points The three common inventory cost flow assumptions used in business are the (1) first-in, first-out method (FIFO); (2) last-in, first-out method (LIFO); and (3) average cost method. The cost flow assumption affects the income statement and balance sheet.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the FIFO, LIFO, and average cost flow methods.		
• Describe how choice of a cost flow method affects the income statement and balance sheet.	EE7-1	PE7-1A, 7-1B

OBJ. 3 Determine the cost of inventory under the perpetual inventory system, using the FIFO, LIFO, and average cost methods.

Key Points In a perpetual inventory system, the number of units and the cost of each type of merchandise are recorded in a subsidiary inventory ledger, with a separate account for each type of merchandise.

Learning Outcomes	Example Exercises	Practice Exercises
• Determine the cost of inventory and cost of merchandise sold using a perpetual inventory system under the FIFO method.	EE7-2	PE7-2A, 7-2B
• Determine the cost of inventory and cost of merchandise sold using a perpetual inventory system under the LIFO method.	EE7-3	PE7-3A, 7-3B

OBJ. 4 Determine the cost of inventory under the periodic inventory system, using the FIFO, LIFO, and average cost methods.

Key Points In a periodic inventory system, a physical inventory is taken to determine the cost of the inventory and the cost of merchandise sold.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Determine the cost of inventory and cost of merchandise sold using a periodic inventory system under the FIFO method.	EE7-4	PE7-4A, 7-4B
• Determine the cost of inventory and cost of merchandise sold using a periodic inventory system under the LIFO method.	EE7-4	PE7-4A, 7-4B
• Determine the cost of inventory and cost of merchandise sold using a periodic inventory system under the average cost method.	EE7-4	PE7-4A, 7-4B

OBJ. 5 Compare and contrast the use of the three inventory costing methods.

Key Points The three inventory costing methods will normally yield different amounts for (1) the ending inventory, (2) the cost of merchandise sold for the period, and (3) the gross profit (and net income) for the period.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Indicate which inventory cost flow method will yield the highest and lowest ending inventory and net income during periods of increasing prices.		
• Indicate which inventory cost flow method will yield the highest and lowest ending inventory and net income during periods of decreasing prices.		

OBJ. 6 Describe and illustrate the reporting of merchandise inventory in the financial statements.

Key Points The lower of cost or market is used to value inventory. Inventory that is out of date, spoiled, or damaged is valued at its net realizable value.

Merchandise inventory is usually presented in the Current Assets section of the balance sheet, following receivables. The method of determining the cost and valuing the inventory is reported.

Errors in reporting inventory based on the physical inventory will affect the balance sheet and income statement.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Determine inventory using lower of cost or market.	EE7-5	PE7-5A, 7-5B
• Illustrate the use of net realizable value for spoiled or damaged inventory.		
• Prepare the Current Assets section of the balance sheet that includes inventory.		
• Determine the effect of inventory errors on the balance sheet and income statement.	EE7-6	PE7-6A, 7-6B

OBJ. 7

Describe and illustrate the inventory turnover and the number of days' sales in inventory in analyzing the efficiency and effectiveness of inventory management.

Key Points Two measures to analyze the efficiency and effectiveness of inventory management are (1) inventory turnover and (2) number of days' sales in inventory

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the use of inventory turnover and number of days' sales in inventory in analyzing how well a company manages inventory.		
• Compute the inventory turnover.	EE7-7	PE7-7A, 7-7B
• Compute the number of days' sales in inventory.	EE7-7	PE7-7A, 7-7B

Key Terms

average inventory cost flow method (318)
consigned inventory (331)
consignee (331)
consignor (331)
first-in, first-out (FIFO) inventory cost flow method (318)
gross profit method (337)
inventory turnover (334)
last-in, first-out (LIFO) inventory cost flow method (318)
lower-of-cost-or-market (LCM) method (328)
net realizable value (330)
number of days' sales in inventory (335)
physical inventory (317)
purchase order (316)
receiving report (316)
retail inventory method (336)
specific identification inventory cost flow method (318)
subsidiary inventory ledger (317)

Illustrative Problem

Stewart Co.'s beginning inventory and purchases during the year ended December 31, 2012, were as follows:

		Unit	Units Cost	Total Cost
January 1	Inventory	1,000	$50.00	$ 50,000
March 10	Purchase	1,200	52.50	63,000
June 25	Sold 800 units			
August 30	Purchase	800	55.00	44,000
October 5	Sold 1,500 units			
November 26	Purchase	2,000	56.00	112,000
December 31	Sold 1,000 units			
Total		5,000		$269,000

Instructions

1. Determine the cost of inventory on December 31, 2012, using the perpetual inventory system and each of the following inventory costing methods:
   a. first-in, first-out
   b. last-in, first-out

2. Determine the cost of inventory on December 31, 2012, using the periodic inventory system and each of the following inventory costing methods:
   a. first-in, first-out
   b. last-in, first-out
   c. average cost

3. Appendix: Assume that during the fiscal year ended December 31, 2012, sales were $290,000 and the estimated gross profit rate was 40%. Estimate the ending inventory at December 31, 2012, using the gross profit method.

Solution

1. a. First-in, first-out method: $95,200
   b. Last-in, first-out method: $91,000 ($35,000 + $56,000)

2. a. First-in, first-out method:
   1,700 units at $56 = $95,200

   b. Last-in, first-out method:

1,000 units at $50.00	$50,000
700 units at $52.50	36,750
1,700 units	$86,750

1. a. First-in, first-out method: $95,200

Date	Purchases			Cost of Merchandise Sold			Inventory		
	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
2012									
Jan. 1							1,000	50.00	50,000
Mar. 10	1,200	52.50	63,000				1,000	50.00	50,000
							1,200	52.50	63,000
June 25				800	50.00	40,000	200	50.00	10,000
							1,200	52.50	63,000
Aug. 30	800	55.00	44,000				200	50.00	10,000
							1,200	52.50	63,000
							800	55.00	44,000
Oct. 5				200	50.00	10,000	700	55.00	38,500
				1,200	52.50	63,000			
				100	55.00	5,500			
Nov. 26	2,000	56.00	112,000				700	55.00	38,500
							2,000	56.00	112,000
Dec. 31				700	55.00	38,500	1,700	56.00	95,200
				300	56.00	16,800			
31	Balances					173,800			95,200

b. Last-in, first-out method: $91,000 ($35,000 + $56,000)

	Purchases			Cost of Merchandise Sold			Inventory		
Date	**Quantity**	**Unit Cost**	**Total Cost**	**Quantity**	**Unit Cost**	**Total Cost**	**Quantity**	**Unit Cost**	**Total Cost**
2012									
Jan. 1							1,000	50.00	50,000
Mar. 10	1,200	52.50	63,000				1,000	50.00	50,000
							1,200	52.50	63,000
June 25				800	52.50	42,000	1,000	50.00	50,000
							400	52.50	21,000
Aug. 30	800	55.00	44,000				1,000	50.00	50,000
							400	52.50	21,000
							800	55.00	44,000
Oct. 5				800	55.00	44,000	700	50.00	35,000
				400	52.50	21,000			
				300	50.00	15,000			
Nov. 26	2,000	56.00	112,000				700	50.00	35,000
							2,000	56.00	112,000
Dec. 31				1,000	56.00	56,000	700	50.00	35,000
							1,000	56.00	56,000
31	Balances					178,000			91,000

c. Average cost method:

Average cost per unit: $269,000/5,000 units = $53.80
Inventory, December 31, 2012: 1,700 units at $53.80 = $91,460

3. Appendix:

Merchandise inventory, January 1, 2012		$ 50,000
Purchases (net)		219,000
Merchandise available for sale		$269,000
Sales (net)	$290,000	
Less estimated gross profit ($290,000 × 40%)	116,000	
Estimated cost of merchandise sold		174,000
Estimated merchandise inventory, December 31, 2012		$ 95,000

Discussion Questions

1. Before inventory purchases are recorded, the receiving report should be reconciled to what documents?
2. Why is it important to periodically take a physical inventory when using a perpetual inventory system?
3. Do the terms *FIFO* and *LIFO* refer to techniques used in determining quantities of the various classes of merchandise on hand? Explain.
4. If merchandise inventory is being valued at cost and the price level is decreasing, which of the three methods of costing—FIFO, LIFO, or average cost—will yield (a) the highest inventory cost, (b) the lowest inventory cost, (c) the highest gross profit, and (d) the lowest gross profit?
5. Which of the three methods of inventory costing—FIFO, LIFO, or average cost—will in general yield an inventory cost most nearly approximating current replacement cost?
6. If inventory is being valued at cost and the price level is steadily rising, which of the three methods of costing—FIFO, LIFO, or average cost—will yield the lowest annual income tax expense? Explain.
7. Because of imperfections, an item of merchandise cannot be sold at its normal selling price. How should this item be valued for financial statement purposes?
8. The inventory at the end of the year was understated by $23,950. (a) Did the error cause an overstatement or an understatement of the gross profit for the year? (b) Which items on the balance sheet at the end of the year were overstated or understated as a result of the error?
9. X-mas Co. sold merchandise to Mistletoe Company on October 31, FOB shipping point. If the merchandise is in transit on October 31, the end of the fiscal year, which company would report it in its financial statements? Explain.
10. A manufacturer shipped merchandise to a retailer on a consignment basis. If the merchandise is unsold at the end of the period, in whose inventory should the merchandise be included?

Practice Exercises

Learning Objectives **Example Exercises**

OBJ. 2 **EE 7-1** *p. 319*

PE 7-1A Cost flow methods

Three identical units of Item K113 are purchased during July, as shown below.

		Item JC07	Units	Cost	
July	9	Purchase	1	$160	
	17	Purchase	1	168	
	26	Purchase	1	176	
	Total		3	$504	
	Average cost per unit			$168	($504 ÷ 3 units)

Assume that one unit is sold on July 31 for $225.

Determine the gross profit for July and ending inventory on July 31 using the (a) first-in, first-out (FIFO); (b) last-in, first-out (LIFO); and (c) average cost methods.

OBJ. 2 **EE 7-1** *p. 319*

PE 7-1B Cost flow methods

Three identical units of Item ZE9 are purchased during April, as shown below.

		Item WH4	Units	Cost	
Apr.	2	Purchase	1	$10	
	12	Purchase	1	12	
	23	Purchase	1	14	
	Total		3	$36	
	Average cost per unit			$12	($36 ÷ 3 units)

Assume that one unit is sold on April 27 for $29.

Determine the gross profit for April and ending inventory on April 30 using the (a) first-in, first-out (FIFO); (b) last-in, first-out (LIFO); and (c) average cost methods.

OBJ. 3 **EE 7-2** *p. 321*

PE 7-2A Perpetual inventory using FIFO

Beginning inventory, purchases, and sales for Item B901 are as follows:

Aug.	1	Inventory	50 units at $80
	9	Sale	30 units
	13	Purchase	40 units at $85
	28	Sale	25 units

Assuming a perpetual inventory system and using the first-in, first-out (FIFO) method, determine (a) the cost of merchandise sold on August 28 and (b) the inventory on August 31.

OBJ. 3 **EE 7-2** *p. 321*

PE 7-2B Perpetual inventory using FIFO

Beginning inventory, purchases, and sales for Item CSW15 are as follows:

Mar.	1	Inventory	100 units at $15
	7	Sale	88 units
	15	Purchase	125 units at $18
	24	Sale	75 units

Assuming a perpetual inventory system and using the first-in, first-out (FIFO) method, determine (a) the cost of merchandise sold on March 24 and (b) the inventory on March 31.

Learning Objectives *Example Exercises*

OBJ. 3 **EE 7-3** *p. 322*

PE 7-3A Perpetual inventory using LIFO

Beginning inventory, purchases, and sales for Item QED9 are as follows:

Nov.	1	Inventory	90 units at $50
	4	Sale	72 units
	23	Purchase	100 units at $60
	26	Sale	84 units

Assuming a perpetual inventory system and using the last-in, first-out (LIFO) method, determine (a) the cost of merchandise sold on November 26 and (b) the inventory on November 30.

OBJ. 3 **EE 7-3** *p. 322*

PE 7-3B Perpetual inventory using LIFO

Beginning inventory, purchases, and sales for Item MMM8 are as follows:

Jan.	1	Inventory	90 units at $17
	8	Sale	75 units
	15	Purchase	125 units at $18
	27	Sale	80 units

Assuming a perpetual inventory system and using the last-in, first-out (LIFO) method, determine (a) the cost of merchandise sold on January 27 and (b) the inventory on January 31.

OBJ. 4 **EE 7-4** *p. 326*

PE 7-4A Periodic inventory using FIFO, LIFO, average cost methods

The units of an item available for sale during the year were as follows:

Jan. 1	Inventory	12 units at $45	$ 540
July 7	Purchase	18 units at $50	900
Nov. 23	Purchase	15 units at $54	810
Available for sale		45 units	$2,250

There are 11 units of the item in the physical inventory at December 31. The periodic inventory system is used. Determine the inventory cost using (a) the first-in, first-out (FIFO) method; (b) the last-in, first-out (LIFO) method; and (c) the average cost method.

OBJ. 4 **EE 7-4** *p. 326*

PE 7-4B Periodic inventory using FIFO, LIFO, average cost methods

The units of an item available for sale during the year were as follows:

Jan. 1	Inventory	10 units at $120	$ 1,200
Apr. 13	Purchase	130 units at $114	14,820
Sept. 30	Purchase	20 units at $119	2,380
Available for sale		160 units	$18,400

There are 23 units of the item in the physical inventory at December 31. The periodic inventory system is used. Determine the inventory cost using (a) the first-in, first-out (FIFO) method; (b) the last-in, first-out (LIFO) method; and (c) the average cost method.

OBJ. 6 **EE 7-5** *p. 329*

PE 7-5A Lower-of-cost-or-market method

On the basis of the following data, determine the value of the inventory at the lower of cost or market. Apply lower of cost or market to each inventory item as shown in Exhibit 8.

Item	Inventory Quantity	Unit Cost Price	Unit Market Price
IA17	200	$40	$38
TX24	150	55	60

OBJ. 6 **EE 7-5** *p. 329*

PE 7-5B Lower-of-cost-or-market method

On the basis of the following data, determine the value of the inventory at the lower of cost or market. Apply lower of cost or market to each inventory item as shown in Exhibit 8.

Item	Inventory Quantity	Unit Cost Price	Unit Market Price
MT22	1,500	$ 7	$ 4
WY09	900	22	25

Learning Objectives *Example Exercises*

OBJ. 6 **EE 7-6** *p. 333*

PE 7-6A Effect of inventory errors

During the taking of its physical inventory on December 31, 2012, Kate's Interiors Company incorrectly counted its inventory as $83,175 instead of the correct amount of $90,700. Indicate the effect of the misstatement on Kate's Interiors' December 31, 2012, balance sheet and income statement for the year ended December 31, 2012.

OBJ. 6 **EE 7-6** *p. 333*

PE 7-6B Effect of inventory errors

During the taking of its physical inventory on December 31, 2012, Russian Bath Company incorrectly counted its inventory as $580,000 instead of the correct amount of $545,000. Indicate the effect of the misstatement on Russian Bath's December 31, 2012, balance sheet and income statement for the year ended December 31, 2012.

OBJ. 7 **EE 7-7** *p. 335*

FAI

PE 7-7A Inventory turnover and number of days' sales in inventory

The following financial statement data for years ending December 31 for Gillispie Company are shown below.

	2012	2011
Cost of merchandise sold	$882,000	$680,000
Inventories:		
Beginning of year	$200,000	$140,000
End of year	290,000	200,000

a. Determine inventory turnover for 2012 and 2011.

b. Determine the number of days' sales in inventory for 2012 and 2011. Round to one decimal place.

c. Does the change in inventory turnover and the number of days' sales in inventory from 2011 to 2012 indicate a favorable or unfavorable trend?

OBJ. 7 **EE 7-7** *p. 335*

FAI

PE 7-7B Inventory turnover and number of days' sales in inventory

The following financial statement data for years ending December 31 for Pinnell Company are shown below.

	2012	2011
Cost of merchandise sold	$1,800,000	$1,428,000
Inventories:		
Beginning of year	$570,000	$450,000
End of year	630,000	570,000

a. Determine inventory turnover for 2012 and 2011.

b. Determine the number of days' sales in inventory for 2012 and 2011. Round to one decimal place.

c. Does the change in inventory turnover and the number of days' sales in inventory from 2011 to 2012 indicate a favorable or unfavorable trend?

Exercises

OBJ. 1

EX 7-1 Control of inventories

A4A Hardware Store currently uses a periodic inventory system. Ray Ballard, the owner, is considering the purchase of a computer system that would make it feasible to switch to a perpetual inventory system.

Ray is unhappy with the periodic inventory system because it does not provide timely information on inventory levels. Ray has noticed on several occasions that the store runs out of good-selling items, while too many poor-selling items are on hand.

Ray is also concerned about lost sales while a physical inventory is being taken. A4A Hardware currently takes a physical inventory twice a year. To minimize distractions, the store is closed on the day inventory is taken. Ray believes that closing the store is the only way to get an accurate inventory count.

Will switching to a perpetual inventory system strengthen A4A Hardware's control over inventory items? Will switching to a perpetual inventory system eliminate the need for a physical inventory count? Explain.

OBJ. 1

EX 7-2 Control of inventories

Lincoln Luggage Shop is a small retail establishment located in a large shopping mall. This shop has implemented the following procedures regarding inventory items:

a. Since the shop carries mostly high-quality, designer luggage, all inventory items are tagged with a control device that activates an alarm if a tagged item is removed from the store.

b. Since the display area of the store is limited, only a sample of each piece of luggage is kept on the selling floor. Whenever a customer selects a piece of luggage, the salesclerk gets the appropriate piece from the store's stockroom. Since all salesclerks need access to the stockroom, it is not locked. The stockroom is adjacent to the break room used by all mall employees.

c. Whenever Lincoln receives a shipment of new inventory, the items are taken directly to the stockroom. Lincoln's accountant uses the vendor's invoice to record the amount of inventory received.

State whether each of these procedures is appropriate or inappropriate. If it is inappropriate, state why.

OBJ. 2, 3

✔ Inventory balance, June 30, $5,070

EX 7-3 Perpetual inventory using FIFO

Beginning inventory, purchases, and sales data for portable DVD players are as follows:

June	1	Inventory	75 units at $40
	6	Sale	60 units
	14	Purchase	90 units at $42
	19	Sale	50 units
	25	Sale	20 units
	30	Purchase	80 units at $45

The business maintains a perpetual inventory system, costing by the first-in, first-out method.

a. Determine the cost of the merchandise sold for each sale and the inventory balance after each sale, presenting the data in the form illustrated in Exhibit 3.

b. Based upon the preceding data, would you expect the inventory to be higher or lower using the last-in, first-out method?

OBJ. 2, 3

✔ Inventory balance, June 30, $5,040

EX 7-4 Perpetual inventory using LIFO

Assume that the business in Exercise 7-3 maintains a perpetual inventory system, costing by the last-in, first-out method. Determine the cost of merchandise sold for each sale and the inventory balance after each sale, presenting the data in the form illustrated in Exhibit 4.

OBJ. 2, 3

✔ Inventory balance, July 31, $23,900

EX 7-5 Perpetual inventory using LIFO

Beginning inventory, purchases, and sales data for prepaid cell phones for July are as follows:

Inventory		Purchases		Sales	
July 1	800 units at $45	July 10	500 units at $50	July 12	700 units
		20	450 units at $52	14	300 units
				31	250 units

a. Assuming that the perpetual inventory system is used, costing by the LIFO method, determine the cost of merchandise sold for each sale and the inventory balance after each sale, presenting the data in the form illustrated in Exhibit 4.

b. Based upon the preceding data, would you expect the inventory to be higher or lower using the first-in, first-out method?

OBJ. 2, 3

✔ Inventory balance, July 31, $25,900

EX 7-6 Perpetual inventory using FIFO

Assume that the business in Exercise 7-5 maintains a perpetual inventory system, costing by the first-in, first-out method. Determine the cost of merchandise sold for each sale and the inventory balance after each sale, presenting the data in the form illustrated in Exhibit 3.

OBJ. 2, 3

✔ b. $15,100

EX 7-7 FIFO, LIFO costs under perpetual inventory system

The following units of a particular item were available for sale during the year:

Beginning inventory	180 units at $80
Sale	120 units at $125
First purchase	400 units at $82
Sale	300 units at $125
Second purchase	300 units at $84
Sale	275 units at $125

The firm uses the perpetual inventory system, and there are 185 units of the item on hand at the end of the year. What is the total cost of the ending inventory according to (a) FIFO, (b) LIFO?

OBJ. 2, 4

✔ b. $6,138

EX 7-8 Periodic inventory by three methods

The units of an item available for sale during the year were as follows:

Jan. 1	Inventory	9 units at $360
Feb. 17	Purchase	18 units at $414
July 21	Purchase	21 units at $468
Nov. 23	Purchase	12 units at $495

There are 16 units of the item in the physical inventory at December 31. The periodic inventory system is used. Determine the inventory cost by (a) the first-in, first-out method, (b) the last-in, first-out method, and (c) the average cost method.

OBJ. 2, 4

✔ a. Inventory, $4,986

EX 7-9 Periodic inventory by three methods; cost of merchandise sold

The units of an item available for sale during the year were as follows:

Jan. 1	Inventory	21 units at $180
Mar. 10	Purchase	29 units at $195
Aug. 30	Purchase	10 units at $204
Dec. 12	Purchase	15 units at $210

There are 24 units of the item in the physical inventory at December 31. The periodic inventory system is used. Determine the inventory cost and the cost of merchandise sold by three methods, presenting your answers in the following form:

	Cost	
Inventory Method	**Merchandise Inventory**	**Merchandise Sold**
a. First-in, first-out	$	$
b. Last-in, first-out		
c. Average cost		

OBJ. 5

EX 7-10 Comparing inventory methods

Assume that a firm separately determined inventory under FIFO and LIFO and then compared the results.

a. In each space below, place the correct sign [less than (<), greater than (>), or equal (=)] for each comparison, assuming periods of rising prices.

1. FIFO inventory ____________ LIFO inventory
2. FIFO cost of goods sold ____________ LIFO cost of goods sold
3. FIFO net income ____________ LIFO net income
4. FIFO income tax ____________ LIFO income tax

b. Why would management prefer to use LIFO over FIFO in periods of rising prices?

OBJ. 6
✔ LCM: $10,320

EX 7-11 Lower-of-cost-or-market inventory

On the basis of the following data, determine the value of the inventory at the lower of cost or market. Assemble the data in the form illustrated in Exhibit 8.

Commodity	Inventory Quantity	Unit Cost Price	Unit Market Price
AL65	40	$28	$30
CA22	50	70	65
LA98	110	6	5
SC16	30	40	30
UT28	75	60	62

OBJ. 6

EX 7-12 Merchandise inventory on the balance sheet

Based on the data in Exercise 7-11 and assuming that cost was determined by the FIFO method, show how the merchandise inventory would appear on the balance sheet.

OBJ. 6

EX 7-13 Effect of errors in physical inventory

Hydro White Water Co. sells canoes, kayaks, whitewater rafts, and other boating supplies. During the taking of its physical inventory on December 31, 2012, Hydro White Water incorrectly counted its inventory as $439,650 instead of the correct amount of $451,000.

a. State the effect of the error on the December 31, 2012, balance sheet of Hydro White Water.

b. State the effect of the error on the income statement of Hydro White Water for the year ended December 31, 2012.

c. If uncorrected, what would be the effect of the error on the 2013 income statement?

d. If uncorrected, what would be the effect of the error on the December 31, 2013, balance sheet?

OBJ. 6

EX 7-14 Effect of errors in physical inventory

Eclipse Motorcycle Shop sells motorcycles, ATVs, and other related supplies and accessories. During the taking of its physical inventory on December 31, 2012, Eclipse Motorcycle Shop incorrectly counted its inventory as $350,000 instead of the correct amount of $338,000.

a. State the effect of the error on the December 31, 2012, balance sheet of Eclipse Motorcycle Shop.

b. State the effect of the error on the income statement of Eclipse Motorcycle Shop for the year ended December 31, 2012.

c. If uncorrected, what would be the effect of the error on the 2013 income statement?

d. If uncorrected, what would be the effect of the error on the December 31, 2013, balance sheet?

OBJ. 6

EX 7-15 Error in inventory

During 2012, the accountant discovered that the physical inventory at the end of 2011 had been understated by $18,000. Instead of correcting the error, however, the accountant assumed that an $18,000 overstatement of the physical inventory in 2012 would balance out the error.

Are there any flaws in the accountant's assumption? Explain.

OBJ. 7

FAI

EX 7-16 Inventory turnover

The following data were taken from recent annual reports of Apple Computer, Inc., a manufacturer of personal computers and related products, and American Greetings Corporation, a manufacturer and distributor of greeting cards and related products:

	Apple	American Greetings
Cost of goods sold	$23,397,000,000	$809,956,000
Inventory, end of year	455,000,000	203,873,000
Inventory, beginning of the year	509,000,000	216,671,000

a. Determine the inventory turnover for Apple and American Greetings. Round to one decimal place.

b. Would you expect American Greetings' inventory turnover to be higher or lower than Apple's? Why?

OBJ. 7

✔ a. Kroger, 30 days' sales in inventory

EX 7-17 Inventory turnover and number of days' sales in inventory

Kroger, **Safeway Inc.**, and **Winn-Dixie Stores Inc.** are three grocery chains in the United States. Inventory management is an important aspect of the grocery retail business. Recent balance sheets for these three companies indicated the following merchandise inventory information:

	Merchandise Inventory	
	End of Year (in millions)	Beginning of Year (in millions)
Kroger	$4,859	$4,855
Safeway	2,591	2,798
Winn-Dixie	665	649

The cost of goods sold for each company were:

	Cost of Goods Sold (in millions)
Kroger	$58,564
Safeway	31,589
Winn-Dixie	5,269

a. Determine the number of days' sales in inventory and inventory turnover for the three companies. Round to the nearest day and one decimal place.

b. Interpret your results in part (a).

c. If Winn-Dixie had Kroger's number of days' sales in inventory, how much additional cash flow (round to nearest million) would have been generated from the smaller inventory relative to its actual average inventory position?

Appendix

EX 7-18 Retail inventory method

A business using the retail method of inventory costing determines that merchandise inventory at retail is $780,000. If the ratio of cost to retail price is 65%, what is the amount of inventory to be reported on the financial statements?

Appendix

EX 7-19 Retail inventory method

A business using the retail method of inventory costing determines that merchandise inventory at retail is $475,000. If the ratio of cost to retail price is 80%, what is the amount of inventory to be reported on the financial statements?

Appendix

EX 7-20 Retail inventory method

A business using the retail method of inventory costing determines that merchandise inventory at retail is $900,000. If the ratio of cost to retail price is 72%, what is the amount of inventory to be reported on the financial statements?

✔ Inventory, November 30: $337,500

Appendix

EX 7-21 Retail inventory method

On the basis of the following data, estimate the cost of the merchandise inventory at November 30 by the retail method:

		Cost	Retail
November 1	Merchandise inventory	$ 300,000	$ 400,000
November 1–30	Purchases (net)	2,100,000	2,800,000
November 1–30	Sales (net)		2,750,000

✓ a. Merchandise destroyed: $620,000

Appendix

EX 7-22 Gross profit inventory method

The merchandise inventory was destroyed by fire on December 13. The following data were obtained from the accounting records:

Jan. 1	Merchandise inventory	$ 500,000
Jan. 1–Dec. 13	Purchases (net)	4,280,000
	Sales (net)	6,500,000
	Estimated gross profit rate	36%

a. Estimate the cost of the merchandise destroyed.

b. Briefly describe the situations in which the gross profit method is useful.

Appendix

EX 7-23 Gross profit method

Based on the following data, estimate the cost of ending merchandise inventory:

Sales (net)	$5,260,000
Estimated gross profit rate	40%
Beginning merchandise inventory	$ 180,000
Purchases (net)	3,200,000
Merchandise available for sale	$3,380,000

Appendix

EX 7-24 Gross profit method

Based on the following data, estimate the cost of ending merchandise inventory:

Sales (net)	$2,080,000
Estimated gross profit rate	37%
Beginning merchandise inventory	$ 75,000
Purchases (net)	1,325,000
Merchandise available for sale	$1,400,000

Problems Series A

OBJ. 2, 3

✓ 3. $28,725

PR 7-1A FIFO perpetual inventory

The beginning inventory at Keats Office Supplies and data on purchases and sales for a three-month period are as follows:

Date	Transaction	Number of Units	Per Unit	Total
Mar. 1	Inventory	300	$20	$ 6,000
10	Purchase	500	21	10,500
28	Sale	400	35	14,000
30	Sale	250	40	10,000
Apr. 5	Sale	80	40	3,200
10	Purchase	450	22	9,900
16	Sale	250	42	10,500
28	Sale	150	45	6,750
May 5	Purchase	175	24	4,200
14	Sale	160	50	8,000
25	Purchase	150	25	3,750
30	Sale	140	50	7,000

Instructions

1. Record the inventory, purchases, and cost of merchandise sold data in a perpetual inventory record similar to the one illustrated in Exhibit 3, using the first-in, first-out method.
2. Determine the total sales and the total cost of merchandise sold for the period. Journalize the entries in the sales and cost of merchandise sold accounts. Assume that all sales were on account.
3. Determine the gross profit from sales for the period.
4. Determine the ending inventory cost.
5. Based upon the preceding data, would you expect the inventory using the last-in, first-out method to be higher or lower?

OBJ. 2, 3
✔ 2. Gross profit, $28,210

PR 7-2A LIFO perpetual inventory

The beginning inventory at Keats Office Supplies and data on purchases and sales for a three-month period are shown in Problem 7-1A.

Instructions

1. Record the inventory, purchases, and cost of merchandise sold data in a perpetual inventory record similar to the one illustrated in Exhibit 4, using the last-in, first-out method.
2. Determine the total sales, the total cost of merchandise sold, and the gross profit from sales for the period.
3. Determine the ending inventory cost.

OBJ. 2, 4
✔ 1. $6,756

PR 7-3A Periodic inventory by three methods

Bulldog Appliances uses the periodic inventory system. Details regarding the inventory of appliances at September 1, 2011, purchases invoices during the next 12 months, and the inventory count at August 31, 2012, are summarized as follows:

		Purchases Invoices			
Model	**Inventory, September 1**	**1st**	**2nd**	**3rd**	**Inventory Count, August 31**
AZ09	—	4 at $ 32	4 at $ 35	4 at $ 38	5
GA85	8 at $ 88	4 at $ 79	3 at $ 85	6 at $ 92	7
HI71	3 at 75	3 at 65	15 at 68	9 at 70	5
KS32	7 at 242	6 at 250	5 at 260	10 at 259	9
MS17	12 at 80	10 at 82	16 at 89	16 at 90	13
ND52	2 at 108	2 at 110	3 at 128	3 at 130	5
WV63	5 at 160	4 at 170	4 at 175	7 at 180	8

Instructions

1. Determine the cost of the inventory on August 31, 2012, by the first-in, first-out method. Present data in columnar form, using the following headings:

Model	Quantity	Unit Cost	Total Cost

   If the inventory of a particular model comprises one entire purchase plus a portion of another purchase acquired at a different unit cost, use a separate line for each purchase.

2. Determine the cost of the inventory on August 31, 2012, by the last-in, first-out method, following the procedures indicated in (1).
3. Determine the cost of the inventory on August 31, 2012, by the average cost method, using the columnar headings indicated in (1).
4. Discuss which method (FIFO or LIFO) would be preferred for income tax purposes in periods of (a) rising prices and (b) declining prices.

OBJ. 6

✔ Total LCM, $44,621

PR 7-4A Lower-of-cost-or-market inventory

If the working papers correlating with this textbook are not used, omit Problem 7-4A.

Data on the physical inventory of Rhino Company as of December 31, 2012, are presented in the working papers. The quantity of each commodity on hand has been determined and recorded on the inventory sheet. Unit market prices have also been determined as of December 31 and recorded on the sheet. The inventory is to be determined at cost and also at the lower of cost or market, using the first-in, first-out method. Quantity and cost data from the last purchases invoice of the year and the next-to-the-last purchases invoice are summarized as follows:

	Last Purchases Invoice		Next-to-the-Last Purchases Invoice	
Description	**Quantity Purchased**	**Unit Cost**	**Quantity Purchased**	**Unit Cost**
Alpha	30	$ 60	30	$ 59
Beta	35	175	20	180
Charlie	20	130	25	129
Echo	130	24	100	25
Frank	10	565	10	560
George	100	15	100	14
Killo	10	385	5	384
Quebec	500	8	500	7
Romeo	80	22	50	21
Sierra	5	250	4	260
Whiskey	100	21	100	19
X-Ray	10	750	9	745

Instructions

Record the appropriate unit costs on the inventory sheet, and complete the pricing of the inventory. When there are two different unit costs applicable to an item, proceed as follows:

1. Draw a line through the quantity, and insert the quantity and unit cost of the last purchase.
2. On the following line, insert the quantity and unit cost of the next-to-the-last purchase.
3. Total the cost and market columns and insert the lower of the two totals in the Lower of C or M column. The first item on the inventory sheet has been completed as an example.

✔ 1. $175,000

Appendix
PR 7-5A Retail method; gross profit method

Selected data on merchandise inventory, purchases, and sales for Myrina Co. and Lemnos Co. are as follows:

	Cost	Retail
Myrina Co.		
Merchandise inventory, May 1	$ 130,000	$ 185,000
Transactions during May:		
Purchases (net)	1,382,000	1,975,000
Sales		1,950,000
Sales returns and allowances		40,000
Lemnos Co.		
Merchandise inventory, July 1	$ 280,000	
Transactions during July through September:		
Purchases (net)	3,400,000	
Sales	5,300,000	
Sales returns and allowances	100,000	
Estimated gross profit rate	35%	

Instructions

1. Determine the estimated cost of the merchandise inventory of Myrina Co. on May 31 by the retail method, presenting details of the computations.
2. a. Estimate the cost of the merchandise inventory of Lemnos Co. on September 30 by the gross profit method, presenting details of the computations.
   b. Assume that Lemnos Co. took a physical inventory on September 30 and discovered that $269,750 of merchandise was on hand. What was the estimated loss of inventory due to theft or damage during July through September?

Problems Series B

OBJ. 2, 3

✓ 3. $642,500

PR 7-1B FIFO perpetual inventory

The beginning inventory of merchandise at Francesca Co. and data on purchases and sales for a three-month period are as follows:

Date	Transaction	Number of Units	Per Unit	Total
July 3	Inventory	75	$1,500	$112,500
8	Purchase	150	1,800	270,000
11	Sale	90	3,000	270,000
30	Sale	45	3,000	135,000
Aug. 8	Purchase	125	2,000	250,000
10	Sale	110	3,000	330,000
19	Sale	80	3,000	240,000
28	Purchase	100	2,200	220,000
Sept. 5	Sale	60	3,500	210,000
16	Sale	50	3,500	175,000
21	Purchase	180	2,400	432,000
28	Sale	90	3,500	315,000

Instructions

1. Record the inventory, purchases, and cost of merchandise sold data in a perpetual inventory record similar to the one illustrated in Exhibit 3, using the first-in, first-out method.
2. Determine the total sales and the total cost of merchandise sold for the period. Journalize the entries in the sales and cost of merchandise sold accounts. Assume that all sales were on account.
3. Determine the gross profit from sales for the period.
4. Determine the ending inventory cost.
5. Based upon the preceding data, would you expect the inventory using the last-in, first-out method to be higher or lower?

OBJ. 2, 3

✓ 2. Gross profit, $629,000

PR 7-2B LIFO perpetual inventory

The beginning inventory for Francesca Co and data on purchases and sales for a three-month period are shown in Problem 7-1B.

Instructions

1. Record the inventory, purchases, and cost of merchandise sold data in a perpetual inventory record similar to the one illustrated in Exhibit 4, using the last-in, first-out method.
2. Determine the total sales, the total cost of merchandise sold, and the gross profit from sales for the period.
3. Determine the ending inventory cost.

OBJ. 2, 4

✔ 1. $11,210

PR 7-3B Periodic inventory by three methods

Artic Appliances uses the periodic inventory system. Details regarding the inventory of appliances at January 1, 2012, purchases invoices during the year, and the inventory count at December 31, 2012, are summarized as follows:

		Purchases Invoices			
Model	**Inventory, January 1**	**1st**	**2nd**	**3rd**	**Inventory Count, December 31**
AK82	3 at $520	3 at $527	3 at $530	3 at $535	5
CO62	9 at 213	7 at 215	6 at 222	6 at 225	12
DE03	5 at 60	3 at 65	1 at 65	1 at 70	2
FL12	6 at 305	3 at 310	3 at 316	4 at 317	4
ME09	6 at 520	8 at 531	4 at 549	6 at 542	7
NM57	—	4 at 222	4 at 232	—	2
TN33	4 at 35	6 at 36	8 at 37	7 at 39	5

Instructions

1. Determine the cost of the inventory on December 31, 2012, by the first-in, first-out method. Present data in columnar form, using the following headings:

Model	Quantity	Unit Cost	Total Cost

   If the inventory of a particular model comprises one entire purchase plus a portion of another purchase acquired at a different unit cost, use a separate line for each purchase.

2. Determine the cost of the inventory on December 31, 2012, by the last-in, first-out method, following the procedures indicated in (1).
3. Determine the cost of the inventory on December 31, 2012, by the average cost method, using the columnar headings indicated in (1).
4. Discuss which method (FIFO or LIFO) would be preferred for income tax purposes in periods of (a) rising prices and (b) declining prices.

OBJ. 6

✔ Total LCM, $44,166

PR 7-4B Lower-of-cost-or-market inventory

If the working papers correlating with this textbook are not used, omit Problem 7-4B.

Data on the physical inventory of Chiron Co. as of December 31, 2012, are presented in the working papers. The quantity of each commodity on hand has been determined and recorded on the inventory sheet. Unit market prices have also been determined as of December 31 and recorded on the sheet. The inventory is to be determined at cost and also at the lower of cost or market, using the first-in, first-out method. Quantity and cost data from the last purchases invoice of the year and the next-to-the-last purchases invoice are summarized as follows:

	Last Purchases Invoice		Next-to-the-Last Purchases Invoice	
Description	**Quantity Purchased**	**Unit Cost**	**Quantity Purchased**	**Unit Cost**
Alpha	30	$ 60	40	$ 59
Beta	25	170	15	180
Charlie	20	130	15	128
Echo	150	25	100	27
Frank	6	550	15	540
George	90	16	100	15
Killo	8	395	4	394
Quebec	500	6	500	7
Romeo	75	25	80	26
Sierra	5	250	4	260
Whiskey	100	17	115	16
X-Ray	10	750	8	740

Instructions

Record the appropriate unit costs on the inventory sheet, and complete the pricing of the inventory. When there are two different unit costs applicable to an item:

1. Draw a line through the quantity, and insert the quantity and unit cost of the last purchase.
2. On the following line, insert the quantity and unit cost of the next-to-the-last purchase.
3. Total the cost and market columns and insert the lower of the two totals in the Lower of C or M column. The first item on the inventory sheet has been completed as an example.

✓ 1. $409,500

Appendix
PR 7-5B Retail method; gross profit method

Selected data on merchandise inventory, purchases, and sales for Segal Co. and Iroquois Co. are as follows:

	Cost	Retail
Segal Co.		
Merchandise inventory, March 1	$ 298,000	$ 375,000
Transactions during March:		
Purchases (net)	4,850,000	6,225,000
Sales		6,320,000
Sales returns and allowances		245,000
Iroquois Co.		
Merchandise inventory, January 1	$ 300,000	
Transactions during January thru March:		
Purchases (net)	4,150,000	
Sales	6,900,000	
Sales returns and allowances	175,000	
Estimated gross profit rate	40%	

Instructions

1. Determine the estimated cost of the merchandise inventory of Segal Co. on March 31 by the retail method, presenting details of the computations.
2. a. Estimate the cost of the merchandise inventory of Iroquois Co. on March 31 by the gross profit method, presenting details of the computations.
   b. Assume that Iroquois Co. took a physical inventory on March 31 and discovered that $396,500 of merchandise was on hand. What was the estimated loss of inventory due to theft or damage during January thru March?

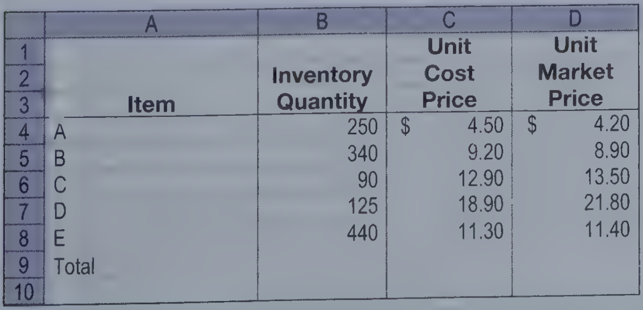
Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA 7-1 Lower of cost or market

All-Tech, Inc., has five inventory items with the following quantities, unit costs, and unit market values:



	A	B	C	D
1 2 3	Item	Inventory Quantity	Unit Cost Price	Unit Market Price
4	A	250	$ 4.50	$ 4.20
5	B	340	9.20	8.90
6	C	90	12.90	13.50
7	D	125	18.90	21.80
8	E	440	11.30	11.40
9	Total			
10				

a. Open the Excel file *SA7-1_2e.*

b. Complete the spreadsheet by determining the lower of cost or market valuation for inventory.

c. When you have completed the inventory table, perform a "save as," replacing the entire file name with the following:

SA7-1_2e[your first name initial]_[your last name]

SA 7-2 Lower of cost or market

Net Way Industries, Inc., has the following inventory items and quantities:

Item	Inventory Item
DJ-12	15
KB-10	32
MM-1	65
PD-16	50
QR-5	120

The unit cost and market value information for the inventory items is as follows:

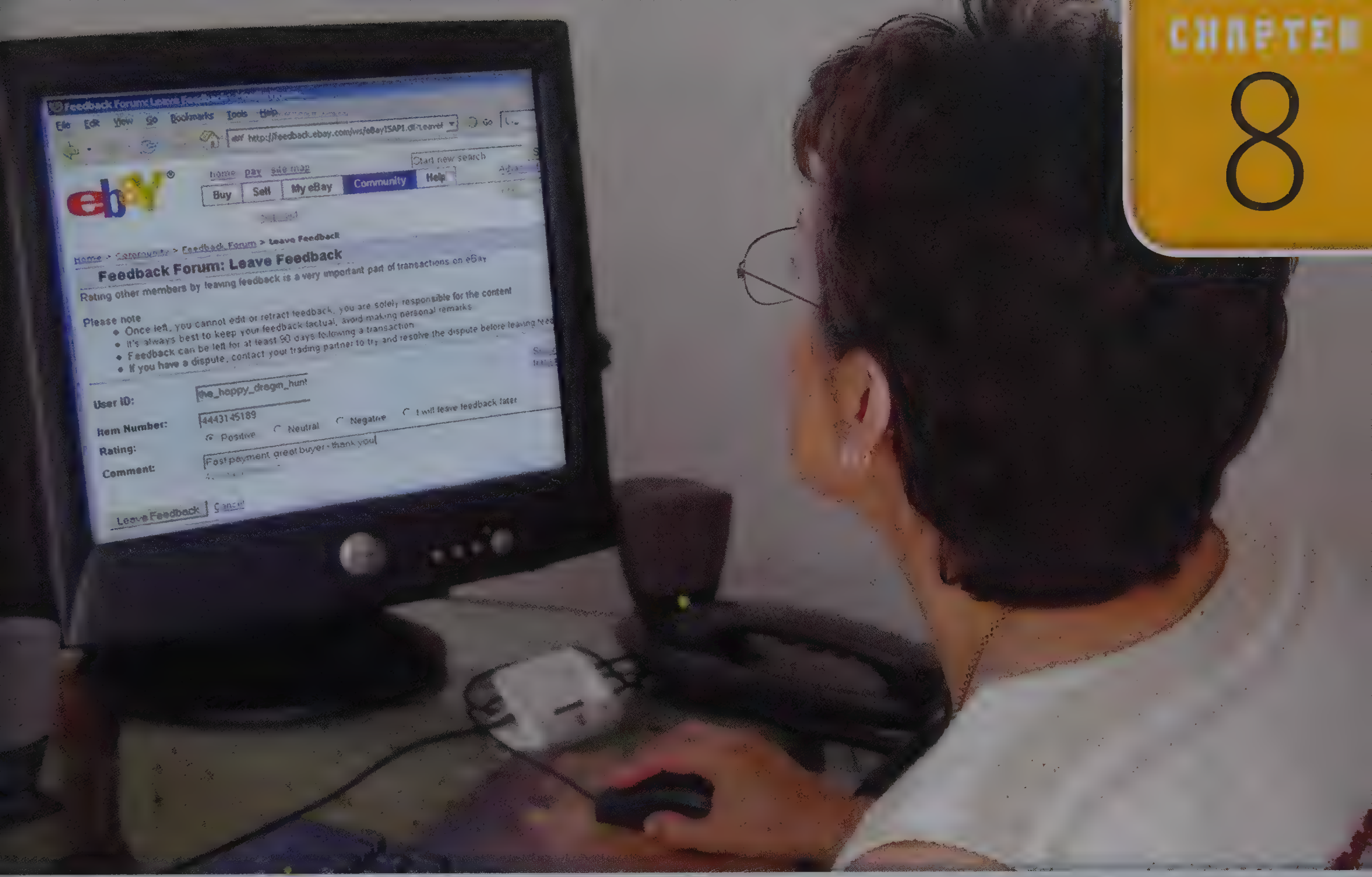
	DJ-12	KB-10	MM-1	PD-16	QR-5
Unit cost price	$145	$225	$90	$235	$32
Unit market price	150	208	94	244	30

a. Open the Excel file *SA7-2_2e.*

b. Prepare a spreadsheet to determine the lower of cost or market valuation for inventory, as illustrated in Exhibit 8 and the associated Excel Success example.

c. When you have completed the inventory table, perform a "save as," replacing the entire file name with the following:

SA7-2_2e[your first name initial]_[your last name]



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CHAPTER

8

Sarbanes-Oxley, Internal Control, and Cash

eBay Inc.

Controls are a part of your everyday life. At one extreme, laws are used to limit your behavior. For example, speed limits are designed to control your driving for traffic safety. In addition, you are also affected by many nonlegal controls. For example, you can keep credit card receipts in order to compare your transactions to the monthly credit card statement. Comparing receipts to the monthly statement is a control designed to catch mistakes made by the credit card company. In addition, banks give you a personal identification number (PIN) as a control against unauthorized access to your cash if you lose your automated teller machine (ATM) card. Dairies use freshness dating on their milk containers as a control to prevent the purchase or sale of soured milk. As you can see, you use and encounter controls every day.

Just as there are many examples of controls throughout society, businesses must also implement controls to help guide the behavior of their managers, employees, and customers. For example, **eBay Inc.** maintains an Internet-based marketplace for the sale of goods and services. Using eBay's online platform, buyers and sellers can browse, buy, and sell a wide variety of items including antiques and used cars. However, in order to maintain the integrity and trust of its buyers and sellers, eBay must have controls to ensure that buyers pay for their items and sellers don't misrepresent their items or fail to deliver sales. One such control eBay uses is a feedback forum that establishes buyer and seller reputations. A prospective buyer or seller can view the member's reputation and feedback comments before completing a transaction. Dishonest or unfair trading can lead to a negative reputation and even suspension or cancellation of the member's ability to trade on eBay.

This chapter discusses controls that can be included in accounting systems to provide reasonable assurance that the financial statements are reliable. Controls to discover and prevent errors to a bank account are also discussed. This chapter begins by discussing the Sarbanes-Oxley Act of 2002 and its impact on controls and financial reporting.

Learning Objectives

	After studying this chapter, you should be able to:	*Example Exercises*	*Page*
OBJ. 1	Describe the Sarbanes-Oxley Act of 2002 and its impact on internal controls and financial reporting.		
	Sarbanes-Oxley Act of 2002		
OBJ. 2	Describe and illustrate the objectives and elements of internal control.		
	Internal Control		
	Objectives of Internal Control		
	Elements of Internal Control		
	Control Environment	EE 8-1	365
	Risk Assessment	EE 8-1	365
	Control Procedures	EE 8-1	365
	Monitoring	EE 8-1	365
	Information and Communication	EE 8-1	365
	Limitations of Internal Control		
OBJ. 3	Describe and illustrate the application of internal controls to cash.		
	Cash Controls Over Receipts and Payments		
	Control of Cash Receipts		
	Control of Cash Payments		
OBJ. 4	Describe the nature of a bank account and its use in controlling cash.		
	Bank Accounts		
	Bank Statement	EE 8-2	370
	Using the Bank Statement as a Control Over Cash		
OBJ. 5	Describe and illustrate the use of a bank reconciliation in controlling cash.		
	Bank Reconciliation	EE 8-3	374
OBJ. 6	Describe the accounting for special-purpose cash funds.		
	Special-Purpose Cash Funds	EE 8-4	376
OBJ. 7	Describe and illustrate the reporting of cash and cash equivalents in the financial statements.		
	Financial Statement Reporting of Cash		
OBJ. 8	Describe and illustrate the use of the ratio of cash to monthly cash expenses to assess the ability of a company to continue in business.		
	Financial Analysis and Interpretation: Ratio of Cash to Monthly Cash Expenses	EE 8-5	378

At a Glance 8 Page 379

OBJ. 1 Describe the Sarbanes-Oxley Act of 2002 and its impact on internal controls and financial reporting.

Sarbanes-Oxley Act of 2002

During the financial scandals of the early 2000s, stockholders, creditors, and other investors lost billions of dollars.[1] As a result, the U.S. Congress passed the **Sarbanes-Oxley Act of 2002**. This act, often referred to as *Sarbanes-Oxley*, is one of the most important laws affecting U.S. companies in recent history. The purpose of Sarbanes-Oxley is to restore public confidence and trust in the financial reporting of companies.

Sarbanes-Oxley applies only to companies whose stock is traded on public exchanges, referred to as *publicly held companies*. However, Sarbanes-Oxley highlighted the importance of assessing the financial controls and reporting of all companies. As a result, companies of all sizes have been influenced by Sarbanes-Oxley.

Sarbanes-Oxley emphasizes the importance of effective internal control.[2] **Internal control** is defined as the procedures and processes used by a company to:

1. Safeguard its assets.
2. Process information accurately.
3. Ensure compliance with laws and regulations.

Sarbanes-Oxley requires companies to maintain effective internal controls over the recording of transactions and the preparing of financial statements. Such controls are important because they deter fraud and prevent misleading financial statements as shown on the next page.

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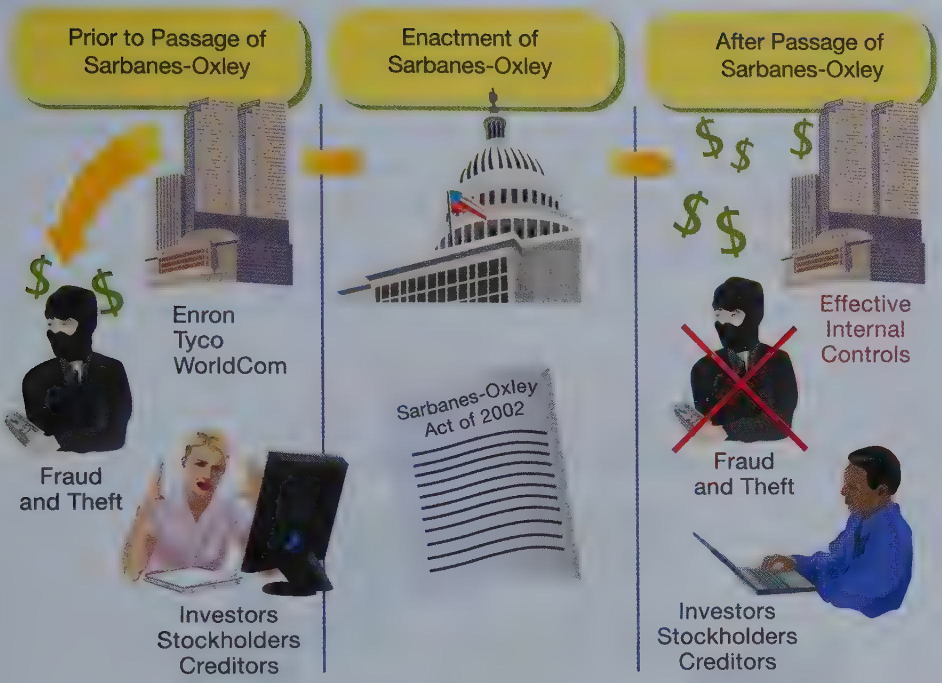
[1] Exhibit 2 in Chapter 1 briefly summarizes these scandals.

[2] Sarbanes-Oxley also has important implications for corporate governance and the regulation of the public accounting profession. This chapter, however, focuses on the internal control implications of Sarbanes-Oxley.



Sarbanes-Oxley also requires companies and their independent accountants to report on the effectiveness of the company's internal controls.[3] These reports are required to be filed with the company's annual 10-K report with the Securities and Exchange Commission. Companies are also encouraged to include these reports in their annual reports to stockholders. An example of such a report by the management of Nike is shown in Exhibit 1.

EXHIBIT 1

Sarbanes-Oxley Report of Nike

Management's Annual Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting . . . , Under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, our management conducted an evaluation of the effectiveness of our internal control over financial reporting based upon the framework in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on that evaluation, our management concluded that our internal control over financial reporting is effective as of May 31, 2009. . . .

PricewaterhouseCoopers LLP, an independent registered public accounting firm, has audited . . . management's assessment of the effectiveness of our internal control over financial reporting . . . and . . . the effectiveness of our internal control over financial reporting . . . as stated in their report. . . .

MARK G. PARKER
Chief Executive Officer and President

DONALD W. BLAIR
Chief Financial Officer

Exhibit 1 indicates that Nike based its evaluation of internal controls on *Internal Control—Integrated Framework*, which was issued by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission. This framework is the standard by which companies design, analyze, and evaluate internal controls. For this reason, this framework is used as the basis for discussing internal controls.

Information on *Internal Control—Integrated Framework* can be found on COSO's Web site at **http://www.coso.org/.**

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[3] These reporting requirements are required under Section 404 of the act. As a result, these requirements and reports are often referred to as 404 requirements and 404 reports.

OBJ. 2 Describe and illustrate the objectives and elements of internal control.

Internal Control

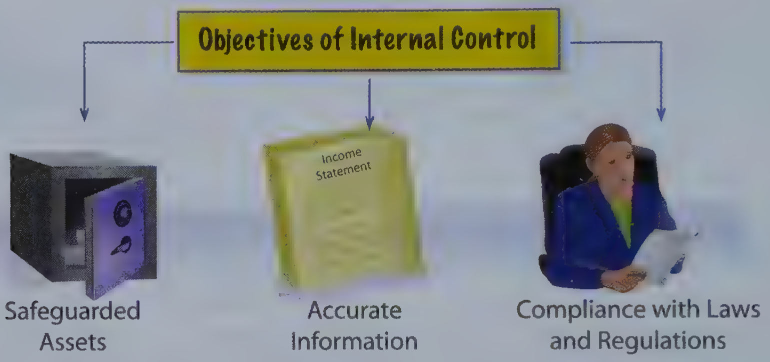
Internal Control—Integrated Framework is the standard by which companies design, analyze, and evaluate internal control.[4] In this section, the objectives of internal control are described followed by a discussion of how these objectives can be achieved through the *Integrated Framework's* five elements of internal control.

Objectives of Internal Control

The objectives of internal control are to provide reasonable assurance that:

1. Assets are safeguarded and used for business purposes.
2. Business information is accurate.
3. Employees and managers comply with laws and regulations.

These objectives are illustrated below.



Internal control can safeguard assets by preventing theft, fraud, misuse, or misplacement. A serious concern of internal control is preventing employee fraud. **Employee fraud** is the intentional act of deceiving an employer for personal gain. Such fraud may range from minor overstating of a travel expense report to stealing millions of dollars. Employees stealing from a business often adjust the accounting records in order to hide their fraud. Thus, employee fraud usually affects the accuracy of business information.

Accurate information is necessary to successfully operate a business. Businesses must also comply with laws, regulations, and financial reporting standards. Examples of such standards include environmental regulations, safety regulations, and generally accepted accounting principles (GAAP).

Business Connection

EMPLOYEE FRAUD

The Association of Fraud Examiners estimates that 7% of annual revenues or about $994 billion is lost to employee fraud in the United States. The most common cash receipts employee fraud is where employees accept cash payments from customers, do not record the sale, and then pocket the cash. A common cash payments employee fraud is where employees bill their employer for false services or personal items.

Source: 2008 *Report to the Nation on Occupational Fraud and Abuse*, Association of Fraud Examiners.

Elements of Internal Control

The three internal control objectives can be achieved by applying the five **elements of internal control** set forth by the *Integrated Framework.*[5] These elements are as follows:

1. Control environment
2. Risk assessment

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[4] *Internal Control—Integrated Framework* by the Committee of Sponsoring Organizations of the Treadway Commission, 1992.

[5] Ibid., pp. 12–14.

3. Control procedures
4. Monitoring
5. Information and communication

The elements of internal control are illustrated in Exhibit 2.

EXHIBIT 2

Elements of Internal Control

In Exhibit 2, the elements of internal control form an umbrella over the business to protect it from control threats. The control environment is the size of the umbrella. Risk assessment, control procedures, and monitoring are the fabric of the umbrella, which keep it from leaking. Information and communication connect the umbrella to management.

Control Environment

The **control environment** is the overall attitude of management and employees about the importance of controls. Three factors influencing a company's control environment are as follows:

1. Management's philosophy and operating style
2. The company's organizational structure
3. The company's personnel policies

Management's philosophy and operating style relates to whether management emphasizes the importance of internal controls. An emphasis on controls and adherence to control policies creates an effective control environment. In contrast, overemphasizing operating goals and tolerating deviations from control policies creates an ineffective control environment.

The business's organizational structure is the framework for planning and controlling operations. For example, a retail store chain might organize each of its stores as separate business units. Each store manager has full authority over pricing and other operating activities. In such a structure, each store manager has the responsibility for establishing an effective control environment.

The business's personnel policies involve the hiring, training, evaluation, compensation, and promotion of employees. In addition, job descriptions, employee codes of ethics, and conflict-of-interest policies are part of the personnel policies. Such policies can enhance the internal control environment if they provide reasonable assurance that only competent, honest employees are hired and retained.

Risk Assessment

All businesses face risks such as changes in customer requirements, competitive threats, regulatory changes, and changes in economic factors. Management should identify such risks, analyze their significance, assess their likelihood of occurring, and take any necessary actions to minimize them.

Control Procedures

Control procedures provide reasonable assurance that business goals will be achieved, including the prevention of fraud. Control procedures, which constitute one of the most important elements of internal control, include the following as shown in Exhibit 3.

1. Competent personnel, rotating duties, and mandatory vacations
2. Separating responsibilities for related operations
3. Separating operations, custody of assets, and accounting
4. Proofs and security measures

EXHIBIT 3

Internal Control Procedures

Competent Personnel, Rotating Duties, and Mandatory Vacations A successful company needs competent employees who are able to perform the duties that they are assigned. Procedures should be established for properly training and supervising employees. It is also advisable to rotate duties of accounting personnel and mandate vacations

for all employees. In this way, employees are encouraged to adhere to procedures. Cases of employee fraud are often discovered when a long-term employee, who never took vacations, missed work because of an illness or another unavoidable reason.

Separating Responsibilities for Related Operations The responsibility for related operations should be divided among two or more persons. This decreases the possibility of errors and fraud. For example, if the same person orders supplies, verifies the receipt of the supplies, and pays the supplier, the following abuses may occur:

1. Orders may be placed on the basis of friendship with a supplier, rather than on price, quality, and other objective factors.
2. The quantity and quality of supplies received may not be verified; thus, the company may pay for supplies not received or that are of poor quality.
3. Supplies may be stolen by the employee.
4. The validity and accuracy of invoices may not be verified; hence, the company may pay false or inaccurate invoices.

For the preceding reasons, the responsibilities for purchasing, receiving, and paying for supplies should be divided among three persons or departments.

Separating Operations, Custody of Assets, and Accounting The responsibilities for operations, custody of assets, and accounting should be separated. In this way, the accounting records serve as an independent check on the operating managers and the employees who have custody of assets.

To illustrate, employees who handle cash receipts should not record cash receipts in the accounting records. To do so would allow employees to borrow or steal cash and hide the theft in the accounting records. Likewise, operating managers should not also record the results of operations. To do so would allow the managers to distort the accounting reports to show favorable results, which might allow them to receive larger bonuses.

Proofs and Security Measures Proofs and security measures are used to safeguard assets and ensure reliable accounting data. Proofs involve procedures such as authorization, approval, and reconciliation. For example, an employee planning to travel on company business may be required to complete a "travel request" form for a manager's authorization and approval.

Documents used for authorization and approval should be prenumbered, accounted for, and safeguarded. Prenumbering of documents helps prevent transactions from being recorded more than once or not at all. In addition, accounting for and

Integrity, Objectivity, and Ethics in Business

TIPS ON PREVENTING EMPLOYEE FRAUD IN SMALL COMPANIES

- Do not have the same employee write company checks and keep the books. Look for payments to vendors you don't know or payments to vendors whose names appear to be misspelled.
- If your business has a computer system, restrict access to accounting files as much as possible. Also, keep a backup copy of your accounting files and store it at an off-site location.
- Be wary of anybody working in finance that declines to take vacations. They may be afraid that a replacement will uncover fraud.
- Require and monitor supporting documentation (such as vendor invoices) before signing checks.
- Track the number of credit card bills you sign monthly.
- Limit and monitor access to important documents and supplies, such as blank checks and signature stamps.
- Check W-2 forms against your payroll annually to make sure you're not carrying any fictitious employees.
- Rely on yourself, not on your accountant, to spot fraud.

Source: Steve Kaufman, "Embezzlement Common at Small Companies," Knight-Ridder Newspapers, reported in *Athens Daily News/Athens Banner-Herald*, March 10, 1996, p. 4D.

safeguarding prenumbered documents helps prevent fraudulent transactions from being recorded. For example, blank checks are prenumbered and safeguarded. Once a payment has been properly authorized and approved, the checks are filled out and issued.

Reconciliations are also an important control. Later in this chapter, the use of bank reconciliations as an aid in controlling cash is described and illustrated.

Security measures involve measures to safeguard assets. For example, cash on hand should be kept in a cash register or safe. Inventory not on display should be stored in a locked storeroom or warehouse. Accounting records such as the accounts receivable subsidiary ledger should also be safeguarded to prevent their loss. For example, electronically maintained accounting records should be safeguarded with access codes and backed up so that any lost or damaged files could be recovered if necessary.

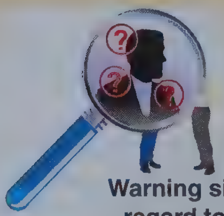
Monitoring

Monitoring the internal control system is used to locate weaknesses and improve controls. Monitoring often includes observing employee behavior and the accounting system for indicators of control problems. Some such indicators are shown in Exhibit 4.[6]

Evaluations of controls are often performed when there are major changes in strategy, senior management, business structure, or operations. Internal auditors, who are independent of operations, usually perform such evaluations. Internal auditors are also responsible for day-to-day monitoring of controls. External auditors also evaluate and report on internal control as part of their annual financial statement audit.

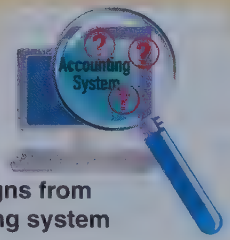
EXHIBIT 4

Warning Signs of Internal Control Problems



Warning signs with regard to people

1. Abrupt change in lifestyle (without winning the lottery).
2. Close social relationships with suppliers.
3. Refusing to take a vacation.
4. Frequent borrowing from other employees.
5. Excessive use of alcohol or drugs.



Warning signs from the accounting system

1. Missing documents or gaps in transaction numbers (could mean documents are being used for fraudulent transactions).
2. An unusual increase in customer refunds (refunds may be phony).
3. Differences between daily cash receipts and bank deposits (could mean receipts are being pocketed before being deposited).
4. Sudden increase in slow payments (employee may be pocketing the payments).
5. Backlog in recording transactions (possibly an attempt to delay detection of fraud).

Information and Communication

Information and communication is an essential element of internal control. Information about the control environment, risk assessment, control procedures, and monitoring is used by management for guiding operations and ensuring compliance with reporting, legal, and regulatory requirements. Management also uses external information to assess events and conditions that impact decision making and external

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[6] Edwin C. Bliss, "Employee Theft," *Boardroom Reports*, July 15, 1994, pp. 5–6.

reporting. For example, management uses pronouncements of the Financial Accounting Standards Board (FASB) to assess the impact of changes in reporting standards on the financial statements.

Example Exercise 8-1 Internal Control Elements

OBJ. 2

Identify each of the following as relating to (a) the control environment, (b) risk assessment, or (c) control procedures.

1. Mandatory vacations
2. Personnel policies
3. Report of outside consultants on future market changes

Follow My Example 8-1

1. (c) control procedures
2. (a) the control environment
3. (b) risk assessment

Practice Exercises: **PE 8-1A, PE 8-1B**

Limitations of Internal Control

Internal control systems can provide only reasonable assurance for safeguarding assets, processing accurate information, and compliance with laws and regulations. In other words, internal controls are not a guarantee. This is due to the following factors:

1. The human element of controls
2. Cost-benefit considerations

The *human element* recognizes that controls are applied and used by humans. As a result, human errors can occur because of fatigue, carelessness, confusion, or misjudgment. For example, an employee may unintentionally shortchange a customer or miscount the amount of inventory received from a supplier. In addition, two or more employees may collude together to defeat or circumvent internal controls. This latter case often involves fraud and the theft of assets. For example, the cashier and the accounts receivable clerk might collude to steal customer payments on account.

Cost-benefit considerations recognize that cost of internal controls should not exceed their benefits. For example, retail stores could eliminate shoplifting by searching all customers before they leave the store. However, such a control procedure would upset customers and result in lost sales. Instead, retailers use cameras or signs saying *We prosecute all shoplifters.*

Cash Controls Over Receipts and Payments

OBJ. 3 Describe and illustrate the application of internal controls to cash.

Cash includes coins, currency (paper money), checks, and money orders. Money on deposit with a bank or other financial institution that is available for withdrawal is also considered cash. Normally, you can think of cash as anything that a bank would accept for deposit in your account. For example, a check made payable to you could normally be deposited in a bank and, thus, is considered cash.

Businesses usually have several bank accounts. For example, a business might have one bank account for general cash payments and another for payroll. A separate ledger account is normally used for each bank account. For example, a bank account at City Bank could be identified in the ledger as *Cash in Bank—City Bank.* To simplify, this chapter assumes that a company has only *one* bank account, which is identified in the ledger as *Cash.*

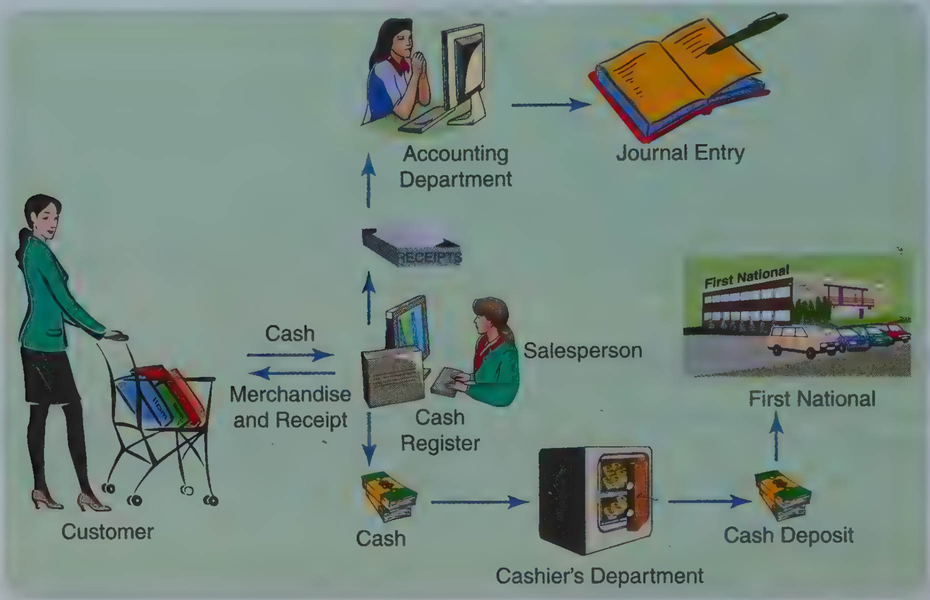
Cash is the asset most likely to be stolen or used improperly in a business. For this reason, businesses must carefully control cash and cash transactions.

Control of Cash Receipts

To protect cash from theft and misuse, a business must control cash from the time it is received until it is deposited in a bank. Businesses normally receive cash from two main sources.

1. Customers purchasing products or services
2. Customers making payments on account

Cash Received from Cash Sales An important control to protect cash received in over-the-counter sales is a cash register. The use of a cash register to control cash is shown below.



A cash register controls cash as follows:

1. At the beginning of every work shift, each cash register clerk is given a cash drawer containing a predetermined amount of cash. This amount is used for making change for customers and is sometimes called a *change fund*.
2. When a salesperson enters the amount of a sale, the cash register displays the amount to the customer. This allows the customer to verify that the clerk has charged the correct amount. The customer also receives a cash receipt.
3. At the end of the shift, the clerk and the supervisor count the cash in the clerk's cash drawer. The amount of cash in each drawer should equal the beginning amount of cash plus the cash sales for the day.
4. The supervisor takes the cash to the Cashier's Department where it is placed in a safe.
5. The supervisor forwards the clerk's cash register receipts to the Accounting Department.
6. The cashier prepares a bank deposit ticket.
7. The cashier deposits the cash in the bank, or the cash is picked up by an armored car service, such as Wells Fargo.
8. The Accounting Department summarizes the cash receipts and records the day's cash sales.
9. When cash is deposited in the bank, the bank normally stamps a duplicate copy of the deposit ticket with the amount received. This bank receipt is returned to the Accounting Department, where it is compared to the total amount that should have been deposited. This control helps ensure that all the cash is deposited and that no cash is lost or stolen on the way to the bank. Any shortages are thus promptly detected.

Salespersons may make errors in making change for customers or in ringing up cash sales. As a result, the amount of cash on hand may differ from the amount of cash sales. Such differences are recorded in a **cash short and over account**.

To illustrate, assume the following cash register data for May 3:

Cash register total for cash sales	$35,690
Cash receipts from cash sales	35,668

The cash sales, receipts, and shortage of $22 ($35,690 – $35,668) would be recorded as follows:

May	3	Cash		35,668	
		Cash Short and Over		22	
		Sales			35,690

If there had been cash over, Cash Short and Over would have been credited for the overage. At the end of the accounting period, a debit balance in Cash Short and Over is included in miscellaneous expense on the income statement. A credit balance is included in the Other Income section. If a salesperson consistently has large cash short and over amounts, the supervisor may require the clerk to take additional training.

Cash Received in the Mail Cash is received in the mail when customers pay their bills. This cash is usually in the form of checks and money orders. Most companies design their invoices so that customers return a portion of the invoice, called a *remittance advice*, with their payment. Remittance advices may be used to control cash received in the mail as follows:

1. An employee opens the incoming mail and compares the amount of cash received with the amount shown on the remittance advice. If a customer does not return a remittance advice, the employee prepares one. The remittance advice serves as a record of the cash initially received. It also helps ensure that the posting to the customer's account is for the amount of cash received.
2. The employee opening the mail stamps checks and money orders "For Deposit Only" in the bank account of the business.
3. The remittance advices and their summary totals are delivered to the Accounting Department.
4. All cash and money orders are delivered to the Cashier's Department.
5. The cashier prepares a bank deposit ticket.
6. The cashier deposits the cash in the bank, or the cash is picked up by an armored car service, such as Wells Fargo.
7. An accounting clerk records the cash received and posts the amounts to the customer accounts.
8. When cash is deposited in the bank, the bank normally stamps a duplicate copy of the deposit ticket with the amount received. This bank receipt is returned to the Accounting Department, where it is compared to the total amount that should have been deposited. This control helps ensure that all cash is deposited and that no cash is lost or stolen on the way to the bank. Any shortages are thus promptly detected.

Separating the duties of the Cashier's Department, which handles cash, and the Accounting Department, which records cash, is a control. If Accounting Department employees both handle and record cash, an employee could steal cash and change the accounting records to hide the theft.

Cash Received by EFT Cash may also be received from customers through **electronic funds transfer (EFT)**. For example, customers may authorize automatic electronic transfers from their checking accounts to pay monthly bills for such items as cell phone, Internet, and electric services. In such cases, the company sends the customer's bank a signed form from the customer authorizing the monthly electronic transfers. Each month, the company notifies the customer's bank of the amount of the transfer and the date the transfer should take place. On the due date, the company records the electronic transfer as a receipt of cash to its bank account and posts the amount paid to the customer's account.

Companies encourage customers to use EFT for the following reasons:

1. EFTs cost less than receiving cash payments through the mail.
2. EFTs enhance internal controls over cash since the cash is received directly by the bank without any employees handling cash.
3. EFTs reduce late payments from customers and speed up the processing of cash receipts.

Control of Cash Payments

The control of cash payments should provide reasonable assurance that:

1. Payments are made for only authorized transactions.
2. Cash is used effectively and efficiently. For example, controls should ensure that all available purchase discounts are taken.

Howard Schultz & Associates (HS&A) specializes in reviewing cash payments for its clients. HS&A searches for errors, such as duplicate payments, failures to take discounts, and inaccurate computations. Amounts recovered for clients range from thousands to millions of dollars.

In a small business, an owner/manager may authorize payments based on personal knowledge. In a large business, however, purchasing goods, inspecting the goods received, and verifying the invoices are usually performed by different employees. These duties must be coordinated to ensure that proper payments are made to creditors. One system used for this purpose is the voucher system.

Voucher System A **voucher system** is a set of procedures for authorizing and recording liabilities and cash payments. A **voucher** is any document that serves as proof of authority to pay cash or issue an electronic funds transfer. An invoice that has been approved for payment could be considered a voucher. In many businesses, however, a voucher is a special form used to record data about a liability and the details of its payment.

In a manual system, a voucher is normally prepared after all necessary supporting documents have been received. For the purchase of goods, a voucher is supported by the supplier's invoice, a purchase order, and a receiving report. After a voucher is prepared, it is submitted for approval. Once approved, the voucher is recorded in the accounts and filed by due date. Upon payment, the voucher is recorded in the same manner as the payment of an account payable.

In a computerized system, data from the supporting documents (such as purchase orders, receiving reports, and suppliers' invoices) are entered directly into computer files. At the due date, the checks are automatically generated and mailed to creditors. At that time, the voucher is electronically transferred to a paid voucher file.

Cash Paid by EFT Cash can also be paid by electronic funds transfer (EFT) systems. For example, you can withdraw cash from your bank account using an ATM machine. Your withdrawal is a type of EFT transfer.

Companies also use EFT transfers. For example, many companies pay their employees via EFT. Under such a system, employees authorize the deposit of their payroll checks directly into their checking accounts. Each pay period, the company transfers the employees' net pay to their checking accounts through the use of EFT. Many companies also use EFT systems to pay their suppliers and other vendors.

OBJ. 4 Describe the nature of a bank account and its use in controlling cash.

Bank Accounts

A major reason that companies use bank accounts is for internal control. Some of the control advantages of using bank accounts are as follows:

1. Bank accounts reduce the amount of cash on hand.
2. Bank accounts provide an independent recording of cash transactions. Reconciling the balance of the cash account in the company's records with the cash balance according to the bank is an important control.
3. Use of bank accounts facilitates the transfer of funds using EFT systems.

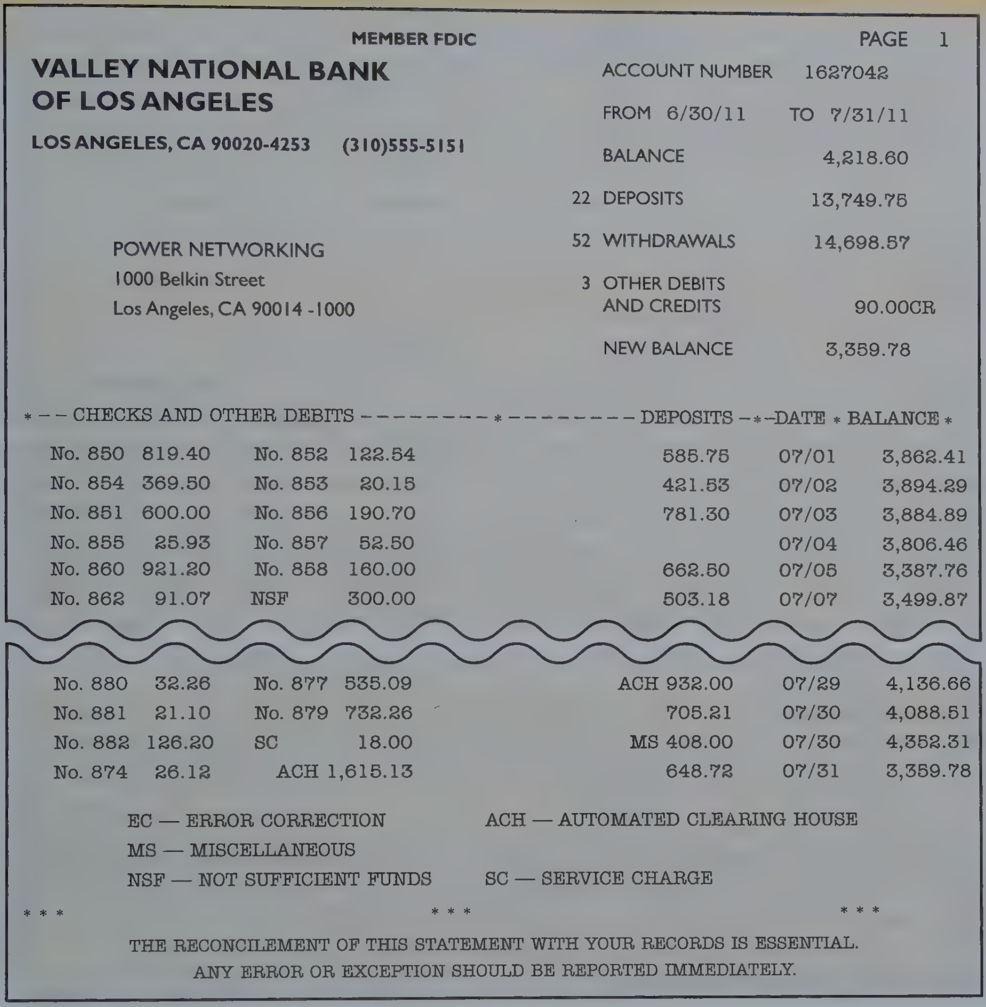
Bank Statement

Banks usually maintain a record of all checking account transactions. A summary of all transactions, called a **bank statement**, is mailed to the company (depositor) or made available online, usually each month. The bank statement shows the beginning balance, additions, deductions, and the ending balance. A typical bank statement is shown in Exhibit 5.

Checks or copies of the checks listed in the order that they were paid by the bank may accompany the bank statement. If paid checks are returned, they are stamped "Paid," together with the date of payment. Many banks no longer return checks or check copies. Instead, the check payment information is available online.

EXHIBIT 5

Bank Statement



MEMBER FDIC

VALLEY NATIONAL BANK
OF LOS ANGELES

LOS ANGELES, CA 90020-4253 (310)555-5151

POWER NETWORKING
1000 Belkin Street
Los Angeles, CA 90014 -1000

PAGE 1

	ACCOUNT NUMBER	1627042
	FROM 6/30/11	TO 7/31/11
	BALANCE	4,218.60
22	DEPOSITS	13,749.75
52	WITHDRAWALS	14,698.57
3	OTHER DEBITS AND CREDITS	90.00CR
	NEW BALANCE	3,359.78

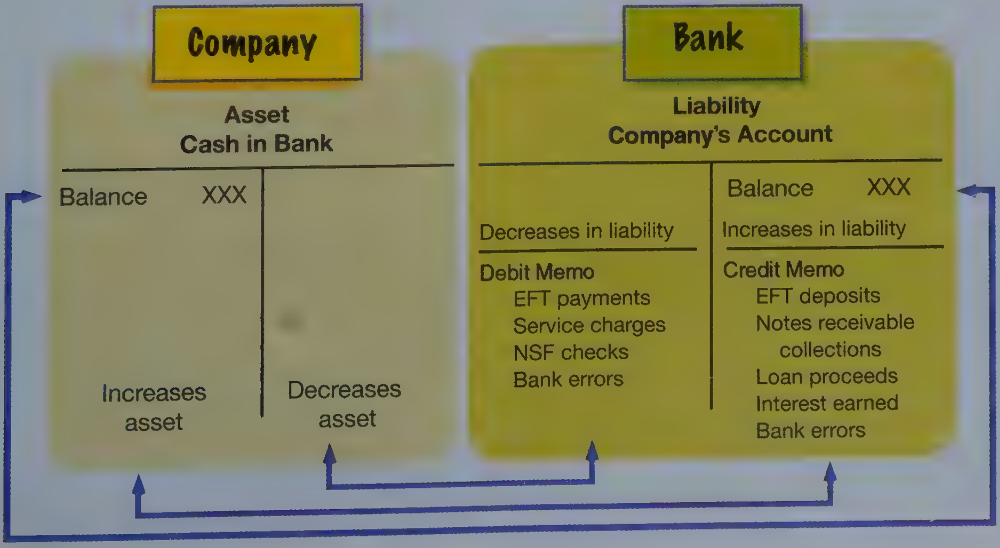
CHECKS AND OTHER DEBITS				DEPOSITS	DATE	BALANCE
No. 850	819.40	No. 852	122.54	585.75	07/01	3,862.41
No. 854	369.50	No. 853	20.15	421.53	07/02	3,894.29
No. 851	600.00	No. 856	190.70	781.30	07/03	3,884.89
No. 855	25.93	No. 857	52.50		07/04	3,806.46
No. 860	921.20	No. 858	160.00	662.50	07/05	3,387.76
No. 862	91.07	NSF	300.00	503.18	07/07	3,499.87
No. 880	32.26	No. 877	535.09	ACH 932.00	07/29	4,136.66
No. 881	21.10	No. 879	732.26	705.21	07/30	4,088.51
No. 882	126.20	SC	18.00	MS 408.00	07/30	4,352.31
No. 874	26.12	ACH	1,615.13	648.72	07/31	3,359.78

EC — ERROR CORRECTION
ACH — AUTOMATED CLEARING HOUSE
MS — MISCELLANEOUS
NSF — NOT SUFFICIENT FUNDS
SC — SERVICE CHARGE

* * *

THE RECONCILEMENT OF THIS STATEMENT WITH YOUR RECORDS IS ESSENTIAL.
ANY ERROR OR EXCEPTION SHOULD BE REPORTED IMMEDIATELY.

The company's checking account balance *in the bank records* is a liability. Thus, in the bank's records, the company's account has a credit balance. Since the bank statement is prepared from the bank's point of view, a credit memo entry on the bank statement indicates an increase (a credit) to the company's account. Likewise, a debit memo entry on the bank statement indicates a decrease (a debit) in the company's account. This relationship is shown below.



A bank makes credit entries (issues credit memos) for the following:

1. Deposits made by electronic funds transfer (EFT)
2. Collections of note receivable for the company
3. Proceeds for a loan made to the company by the bank
4. Interest earned on the company's account
5. Correction (if any) of bank errors

A bank makes debit entries (issues debit memos) for the following:

1. Payments made by electronic funds transfer (EFT)
2. Service charges
3. Customer checks returned for not sufficient funds
4. Correction (if any) of bank errors

Customers' checks returned for not sufficient funds, called *NSF checks*, are customer checks that were initially deposited, but were not paid by the customer's bank. Since the company's bank credited the customer's check to the company's account when it was deposited, the bank debits the company's account (issues a debit memo) when the check is returned without payment.

The reason for a credit or debit memo entry is indicated on the bank statement. Exhibit 5 identifies the following types of credit and debit memo entries:

EC:	Error correction to correct bank error
NSF:	Not sufficient funds check
SC:	Service charge
ACH:	Automated clearing house entry for electronic funds transfer
MS:	Miscellaneous item such as collection of a note receivable on behalf of the company or receipt of a loan by the company from the bank

The above list includes the notation "ACH" for electronic funds transfers. ACH is a network for clearing electronic funds transfers among individuals, companies, and banks.[7] Because electronic funds transfers may be either deposits or payments, ACH entries may indicate either a debit or credit entry to the company's account. Likewise, entries to correct bank errors and miscellaneous items may indicate a debit or credit entry to the company's account.

Example Exercise 8-2 Items on Company's Bank Statement

Obj. 4

The following items may appear on a bank statement:

1. NSF check
2. EFT deposit
3. Service charge
4. Bank correction of an error from recording a $400 check as $40

Using the format shown below, indicate whether the item would appear as a debit or credit memo on the bank statement and whether the item would increase or decrease the balance of the company's account.

Item No.	Appears on the Bank Statement as a Debit or Credit Memo	Increases or Decreases the Balance of the Company's Bank Account

Follow My Example 8-2

Item No.	Appears on the Bank Statement as a Debit or Credit Memo	Increases or Decreases the Balance of the Company's Bank Account
1	debit memo	decreases
2	credit memo	increases
3	debit memo	decreases
4	debit memo	decreases

Practice Exercises: **PE 8-2A, PE 8-2B**

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[7] For further information on ACH, go to **http://www.nacha.org/**. Click on "About Us," and then click on "Intro to NACHA".

Using the Bank Statement as a Control Over Cash

The bank statement is a primary control that a company uses over cash. A company uses the bank's statement as a control by comparing the company's recording of cash transactions to those recorded by the bank.

The cash balance shown by a bank statement is usually different from the company's cash balance, as shown in Exhibit 6.

EXHIBIT 6

Power Networking's Records and Bank Statement

Bank Statement

Beginning balance		$ 4,218.60
Additions:		
Deposits	$13,749.75	
Miscellaneous	408.00	14,157.75
Deductions:		
Checks	$14,698.57	
NSF check	300.00	
Service charge	18.00	(15,016.57)
Ending balance		$ 3,359.78

Power Networking Records

Beginning balance	$ 4,227.60
Deposits	14,565.95
Checks	(16,243.56)
Ending balance	$ 2,549.99

Power Networking should determine the reason for the difference in these two amounts.

Differences between the company and bank balance may arise because of a delay by either the company or bank in recording transactions. For example, there is normally a time lag of one or more days between the date a check is written and the date that it is paid by the bank. Likewise, there is normally a time lag between when the company mails a deposit to the bank (or uses the night depository) and when the bank receives and records the deposit.

Differences may also arise because the bank has debited or credited the company's account for transactions that the company will not know about until the bank statement is received. Finally, differences may arise from errors made by either the company or the bank. For example, the company may incorrectly post to Cash a check written for $4,500 as $450. Likewise, a bank may incorrectly record the amount of a check.

Bank Reconciliation

5 Describe and illustrate the use of a bank reconciliation in controlling cash.

A **bank reconciliation** is an analysis of the items and amounts that result in the cash balance reported in the bank statement to differ from the balance of the cash account in the ledger. The adjusted cash balance determined in the bank reconciliation is reported on the balance sheet.

A bank reconciliation is usually divided into two sections as follows:

1. The *bank section* begins with the cash balance according to the bank statement and ends with the *adjusted balance.*
2. The *company section* begins with the cash balance according to the company's records and ends with the *adjusted balance.*

The *adjusted balance* from bank and company sections must be equal. The format of the bank reconciliation is shown below.

Cash balance according to bank		$XXX
Add: Debits to cash not on bank statement (deposits in transit, etc.)	$XX	
Deduct: Credits to cash not on bank statement (outstanding checks, etc.)	XX	XXX
Adjusted balance		$XXX

Cash balance according to company		$XXX
Add: Unrecorded bank credits (notes collected by bank)	$XX	
Deduct: Unrecorded bank debits (NSF checks, service charges, etc.)	XX	XXX
Adjusted balance		$XXX

Must be equal.

A bank reconciliation is prepared using the following steps:

Bank Section of Reconciliation

Step 1. Enter the *Cash balance according to bank* from the ending cash balance according to the bank statement.

Step 2. *Add deposits not recorded by the bank.*

Identify deposits not recorded by the bank by comparing each deposit listed on the bank statement with unrecorded deposits appearing in the preceding period's reconciliation and with the current period's deposits.

Examples: Deposits in transit at the end of the period.

Step 3. *Deduct outstanding checks that have not been paid by the bank.*

Identify outstanding checks by comparing paid checks with outstanding checks appearing on the preceding period's reconciliation and with recorded checks.

Examples: Outstanding checks at the end of the period.

Step 4. Determine the *Adjusted balance* by adding Step 2 and deducting Step 3.

Company Section of Reconciliation

Step 5. Enter the *Cash balance according to company* from the ending cash balance in the ledger.

Step 6. *Add credit memos that have not been recorded.*

Identify the bank credit memos that have not been recorded by comparing the bank statement credit memos to entries in the journal.

Examples: A note receivable and interest that the bank has collected for the company.

Step 7. *Deduct debit memos that have not been recorded.*

Identify the bank debit memos that have not been recorded by comparing the bank statement debit memos to entries in the journal.

Examples: Customers' not sufficient funds (NSF) checks; bank service charges.

Step 8. Determine the *Adjusted balance* by adding Step 6 and deducting Step 7.

Step 9. Verify that the adjusted balances determined in Steps 4 and 8 are equal.

The adjusted balances in the bank and company sections of the reconciliation must be equal. If the balances are not equal, an item has been overlooked and must be found.

Sometimes, the adjusted balances are not equal because either the company or the bank has made an error. In such cases, the error is often discovered by comparing the amount of each item (deposit and check) on the bank statement with that in the company's records.

Any bank or company errors discovered should be added or deducted from the bank or company section of the reconciliation depending on the nature of the error. For example, assume that the bank incorrectly recorded a company check for $50 as $500. This bank error of $450 ($500 – $50) would be added to the bank balance in the bank section of the reconciliation. In addition, the bank would be notified of the error so that it could be corrected. On the other hand, assume that the company recorded a deposit of $1,200 as $2,100. This company error of $900 ($2,100 – $1,200) would be deducted from the cash balance in the company section of the bank reconciliation. The company would later correct the error using a journal entry.

To illustrate, the bank statement for Power Networking in Exhibit 5 on page 369 is used. This bank statement shows a balance of $3,359.78 as of July 31. The cash balance in Power Networking's ledger on the same date is $2,549.99. Using the preceding steps, the following reconciling items were identified:

Step 2. Deposit of July 31, not recorded on bank statement: $816.20
Step 3. Outstanding checks:

Check No. 812	$1,061.00
Check No. 878	435.39
Check No. 883	48.60
Total	$1,544.99

Step 6. Note receivable of $400 plus interest of $8 collected by bank not recorded in the journal as indicated by a credit memo of $408.
Step 7. Check from customer (Thomas Ivey) for $300 returned by bank because of insufficient funds (NSF) as indicated by a debit memo of $300.00.
Bank service charges of $18, not recorded in the journal as indicated by a debit memo of $18.00.

In addition, an error of $9 was discovered. This error occurred when Check No. 879 for $732.26 to Taylor Co., on account, was recorded in the company's journal as $723.26.

The bank reconciliation, based on the Exhibit 5 bank statement and the preceding reconciling items, is shown in Exhibit 7.

The company's records do not need to be updated for any items in the *bank section* of the reconciliation. This section begins with the cash balance according to the bank statement. However, the bank should be notified of any errors that need to be corrected.

The company's records do need to be updated for any items in the *company section* of the bank reconciliation. The company's records are updated using journal entries. For example, journal entries should be made for any unrecorded bank memos and any company errors.

The journal entries for Power Networking, based on the bank reconciliation shown in Exhibit 7, are as follows:

July	31	Cash		408	
		Notes Receivable			400
		Interest Revenue			8
	31	Accounts Receivable—Thomas Ivey		300	
		Miscellaneous Expense		18	
		Accounts Payable—Taylor Co.		9	
		Cash			327

EXHIBIT 7 Bank Reconciliation for Power Networking

Power Networking
Bank Reconciliation
July 31, 2011

Step 1 →	Cash balance according to bank statement		$3,359.78
Step 2 →	Add deposit of July 31, not recorded by bank		816.20
			$4,175.98
Step 3 →	Deduct outstanding checks:		
	No. 812	$1,061.00	
	No. 878	435.39	
	No. 883	48.60	1,544.99
Step 4 →	Adjusted balance		$2,630.99
Step 5 →	Cash balance according to Power Networking		$2,549.99
Step 6 →	Add note and interest collected by bank		408.00
			$2,957.99
Step 7 →	Deduct: Check returned because of insufficient funds	$ 300.00	
	Bank service charge	18.00	
	Error in recording Check No. 879	9.00	327.00
Step 8 →	Adjusted balance		$2,630.99

After the preceding journal entries are recorded and posted, the cash account will have a debit balance of $2,630.99. This cash balance agrees with the adjusted balance shown on the bank reconciliation. This is the amount of cash on July 31 and is the amount that is reported on Power Networking's July 31 balance sheet.

Businesses may reconcile their bank accounts in a slightly different format from that shown in Exhibit 7. Regardless, the objective is to control cash by reconciling the company's records with the bank statement. In doing so, any errors or misuse of cash may be detected.

To enhance internal control, the bank reconciliation should be prepared by an employee who does not take part in or record cash transactions. Otherwise, mistakes may occur, and it is more likely that cash will be stolen or misapplied. For example, an employee who handles cash and also reconciles the bank statement could steal a cash deposit, omit the deposit from the accounts, and omit it from the reconciliation.

Bank reconciliations are also an important part of computerized systems where deposits and checks are stored in electronic files and records. Some systems use computer software to determine the difference between the bank statement and company cash balances. The software then adjusts for deposits in transit and outstanding checks. Any remaining differences are reported for further analysis.

Example Exercise 8-3 Bank Reconciliation

OBJ 5

The following data were gathered to use in reconciling the bank account of Photo Op:

Balance per bank	$14,500
Balance per company records	13,875
Bank service charges	75
Deposit in transit	3,750
NSF check	800
Outstanding checks	5,250

a. What is the adjusted balance on the bank reconciliation?

b. Journalize any necessary entries for Photo Op based on the bank reconciliation.

(continued)

Follow My Example 8-3

a. $13,000, as shown below.
Bank section of reconciliation: $14,500 + $3,750 – $5,250 = $13,000
Company section of reconciliation: $13,875 – $75 – $800 = $13,000

b.

Accounts Receivable	800	
Miscellaneous Expense	75	
Cash		875

Practice Exercises: **PE 8-3A, PE 8-3B**

Integrity, Objectivity, and Ethics in Business

BANK ERROR IN YOUR FAVOR

You may sometime have a bank error in your favor, such as a misposted deposit. Such errors are not a case of "found money," as in the Monopoly® game. Bank control systems quickly discover most errors and make automatic adjustments. Even so, you have a legal responsibility to report the error and return the money to the bank.

Special-Purpose Cash Funds

6 Describe the accounting for special-purpose cash funds.

A company often has to pay small amounts for such items as postage, office supplies, or minor repairs. Although small, such payments may occur often enough to total a significant amount. Thus, it is desirable to control such payments. However, writing a check for each small payment is not practical. Instead, a special cash fund, called a **petty cash fund**, is used.

A petty cash fund is established by estimating the amount of payments needed from the fund during a period, such as a week or a month. A check is then written and cashed for this amount. The money obtained from cashing the check is then given to an employee, called the *petty cash custodian*. The petty cash custodian disburses monies from the fund as needed. For control purposes, the company may place restrictions on the maximum amount and the types of payments that can be made from the fund. Each time money is paid from petty cash, the custodian records the details on a petty cash receipts form.

The petty cash fund is normally replenished at periodic intervals, when it is depleted, or reaches a minimum amount. When a petty cash fund is replenished, the accounts debited are determined by summarizing the petty cash receipts. A check is then written for this amount, payable to Petty Cash.

To illustrate, assume that a petty cash fund of $500 is established on August 1. The entry to record this transaction is as follows:

Aug.	1	Petty Cash		500	
		Cash			500

The only time Petty Cash is debited is when the fund is initially established, as shown in the preceding entry, or when the fund is being increased. The only time Petty Cash is credited is when the fund is being decreased.

At the end of August, the petty cash receipts indicate expenditures for the following items:

Office supplies	$380
Postage (debit Office Supplies)	22
Store supplies	35
Miscellaneous administrative expense	30
Total	$467

The entry to replenish the petty cash fund on August 31 is as follows:

Aug.	31	Office Supplies		402	
		Store Supplies		35	
		Miscellaneous Administrative Expense		30	
		Cash			467

Petty Cash is not debited when the fund is replenished. Instead, the accounts affected by the petty cash disbursements are debited, as shown in the preceding entry. Replenishing the petty cash fund restores the fund to its original amount of $500.

Companies often use other cash funds for special needs, such as payroll or travel expenses. Such funds are called **special-purpose funds**. For example, each salesperson might be given $1,000 for travel-related expenses. Periodically, each salesperson submits an expense report, and the fund is replenished. Special-purpose funds are established and controlled in a manner similar to that of the petty cash fund.

Example Exercise 8-4 Petty Cash Fund

OBJ. 6

Prepare journal entries for each of the following:

a. Issued a check to establish a petty cash fund of $500.

b. The amount of cash in the petty cash fund is $120. Issued a check to replenish the fund, based on the following summary of petty cash receipts: office supplies, $300 and miscellaneous administrative expense, $75. Record any missing funds in the cash short and over account.

Follow My Example 8-4

a.	Petty Cash	500	
	Cash		500
b.	Office Supplies	300	
	Miscellaneous Administrative Expense	75	
	Cash Short and Over	5	
	Cash		380

Practice Exercises: PE 8-4A, PE 8-4B

OBJ. 7 Describe and illustrate the reporting of cash and cash equivalents in the financial statements.

Financial Statement Reporting of Cash

Cash is normally listed as the first asset in the Current Assets section of the balance sheet. Most companies present only a single cash amount on the balance sheet by combining all their bank and cash fund accounts.

A company may temporarily have excess cash. In such cases, the company normally invests in highly liquid investments in order to earn interest. These investments are called **cash equivalents**.[8] Examples of cash equivalents include U.S. Treasury bills,

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[8] To be classified a cash equivalent, according to FASB Statement No. 95, the investment is expected to be converted to cash within 90 days.

notes issued by major corporations (referred to as commercial paper), and money market funds. In such cases, companies usually report *Cash and cash equivalents* as one amount on the balance sheet.

The balance sheet presentation for cash for Mornin' Joe is shown below.

Mornin' Joe
Balance Sheet
December 31, 2012

Assets

Current assets:	
Cash and cash equivalents	$235,000

Banks may require that companies maintain minimum cash balances in their bank accounts. Such a balance is called a **compensating balance**. This is often required by the bank as part of a loan agreement or line of credit. A *line of credit* is a preapproved amount the bank is willing to lend to a customer upon request. Compensating balance requirements are normally disclosed in notes to the financial statements.

Financial Analysis and Interpretation: Ratio of Cash to Monthly Cash Expenses

OBJ. 8 Describe and illustrate the use of the ratio of cash to monthly cash expenses to assess the ability of a company to continue in business.

For startup companies or companies in financial distress, cash is critical for survival. In their first few years, startup companies often report losses and negative net cash flows from operations. Moreover, companies in financial distress can also report losses and negative cash flows from operations. In such cases, the **ratio of cash to monthly cash expenses** is useful for assessing how long a company can continue to operate without:

1. Additional financing, or
2. Generating positive cash flows from operations

The ratio of cash to monthly cash expenses is computed as follows:

$$\text{Ratio of Cash to Monthly Cash Expenses} = \frac{\text{Cash as of Year-End}}{\text{Monthly Cash Expenses}}$$

The cash, including any cash equivalents, is taken from the balance sheet as of year-end. The monthly cash expenses, sometimes called *cash burn*, are estimated from the operating activities section of the statement of cash flows as follows:

$$\text{Monthly Cash Expenses} = \frac{\text{Negative Cash Flow from Operations}}{12}$$

To illustrate, Evergreen Solar, Inc. manufactures solar products including solar panels that convert sunlight into electricity. The following data (in thousands) were taken from the financial statements of Evergreen Solar:

	For Years Ending December 31			
	2009	**2008**	**2007**	**2006**
Cash and cash equivalents at year-end	$112,368	$100,888	$ 70,428	$ 6,828
Cash flow from operations	(37,094)	(65,881)	(11,996)	(10,328)

Based on the preceding data, the monthly cash expenses and ratio of cash to monthly expenses are computed below.

	For Years Ending December 31			
	2009	**2008**	**2007**	**2006**
Monthly cash expenses:				
$37,094 ÷ 12	$3,091			
$65,881 ÷ 12		$5,490		
$11,996 ÷ 12			$1,000	
$10,328 ÷ 12				$861
Ratio of cash to monthly cash expenses:				
$112,368 ÷ $3,091	36.4 months			
$100,888 ÷ $5,490		18.4 months		
$70,428 ÷ $1,000			70.4 months	
$6,828 ÷ $861				7.9 months

The preceding computations indicate that Evergreen Solar had only 7.9 months of cash available as of December 31, 2006. During 2007, Evergreen raised additional cash of approximately $175 million by issuing stock. This enabled Evergreen to continue to operate in 2007 and resulted in Evergreen having 70.4 months of cash available as of December 31, 2007.

During 2008, Evergreen's monthly cash expenses (cash burn) increased to $5,490 from $1,000 in 2007. Evergreen also raised additional cash of approximately $490 million while investing approximately $350 million in plant and equipment. The result is that as of December 31, 2008, Evergreen had 18.4 months of cash with which to continue to operate.

During 2009, Evergreen decreased its monthly cash expenses from $5,490 in 2008 to $3,091. In addition, Evergreen raised additional cash of $105 million by issuing stock and obtaining a loan. As a result, at the end of 2009 Evergreen had 36.4 months of cash with which to continue to operate. In the long-term, however, Evergreen will need to generate positive cash flows from operations to survive.

Example Exercise 8-5 Ratio of Cash to Monthly Cash Expenses

OBJ. 8

Financial data for Chapman Company are as follows:

	For Year Ending December 31, 2012
Cash on December 31, 2012	$ 102,000
Cash flow from operations	(144,000)

a. Compute the ratio of cash to monthly cash expenses.

b. Interpret the results computed in (a).

Follow My Example 8-5

a.
$$\text{Monthly Cash Expenses} = \frac{\text{Negative Cash Flow from Operations}}{12} = \frac{\$144{,}000}{12} = \$12{,}000 \text{ per month}$$

$$\text{Ratio of Cash to Monthly Cash Expenses} = \frac{\text{Cash as of Year-End}}{\text{Monthly Cash Expenses}} = \frac{\$102{,}000}{\$12{,}000 \text{ per month}} = 8.5 \text{ months}$$

b. The preceding computations indicate that Chapman Company has 8.5 months of cash remaining as of December 31, 2012. To continue operations beyond 8.5 months, Chapman Company will need to generate positive cash flows from operations or raise additional financing from its owners or by issuing debt.

Practice Exercises: **PE 8-5A, PE 8-5B**

Business Connection

MICROSOFT CORPORATION

Microsoft Corporation develops, manufactures, licenses, and supports software products for computing devices. Microsoft software products include computer operating systems, such as Windows®, and application software, such as Microsoft Word® and Excel®. Microsoft is actively involved in the video game market through its Xbox® and is also involved in online products and services.

Microsoft is known for its strong cash position. Microsoft's June 30, 2009, balance sheet reported over $31 billion of cash and short-term investments, as shown below.

Balance Sheet
June 30, 2009
(In millions)

Assets	
Current assets:	
Cash and equivalents	$ 6,076
Short-term investments	25,371
Total cash and short-term investments	$31,447

The cash and cash equivalents of $6,076 million are further described in the notes to the financial statements, as shown below.

Cash and equivalents:	
Cash	$2,064
Mutual funds	900
Commercial paper	400
U.S. government and agency securities	2,369
Certificates of deposit	275
Municipal securities	68
Total cash and equivalents	$6,076

At a Glance 8

OBJ. 1 Describe the Sarbanes-Oxley Act of 2002 and its impact on internal controls and financial reporting.

Key Points Sarbanes-Oxley requires companies to maintain strong and effective internal controls and to report on the effectiveness of the internal controls.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Describe why Congress passed Sarbanes-Oxley. • Describe the purpose of Sarbanes-Oxley. • Define internal control.		

OBJ. 2 Describe and illustrate the objectives and elements of internal control.

Key Points The objectives of internal control are to provide reasonable assurance that (1) assets are safeguarded and used for business purposes, (2) business information is accurate, and (3) laws and regulations are complied with. The elements of internal control are the control environment, risk assessment, control procedures, monitoring, and information and communication.

Learning Outcomes	Example Exercises	Practice Exercises
• List the objectives of internal control.		
• List the elements of internal control.		
• Describe each element of internal control and factors influencing each element.	EE8-1	PE8-1A, 8-1B

OBJ. 3 Describe and illustrate the application of internal controls to cash.

Key Points A cash register is a control for protecting cash received in over-the-counter sales. A remittance advice is a control for cash received through the mail. Separating the duties of handling cash and recording cash is also a control. A voucher system is a control system for cash payments. Many companies use electronic funds transfers for cash receipts and cash payments.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe and give examples of controls for cash received from cash sales, cash received in the mail, and cash received by EFT.		
• Describe and give examples of controls for cash payments made using a voucher system and cash payments made by EFT.		

OBJ. 4 Describe the nature of a bank account and its use in controlling cash.

Key Points Bank accounts control cash by reducing the amount of cash on hand and facilitating the transfer of cash between businesses and locations. In addition, the bank statement allows a business to reconcile the cash transactions recorded in the accounting records to those recorded by the bank.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe how the use of bank accounts helps control cash.		
• Describe a bank statement and provide examples of items that appear on a bank statement as debit and credit memos.	EE8-2	PE8-2A, 8-2B

OBJ. 5 Describe and illustrate the use of a bank reconciliation in controlling cash.

Key Points A bank reconciliation is prepared using nine steps as summarized on page 372. The items in the company section of a bank reconciliation must be journalized on the company's records.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe a bank reconciliation.		
• Prepare a bank reconciliation.	EE8-3	PE8-3A, 8-3B
• Journalize any necessary entries on the company's records based on the bank reconciliation.	EE8-3	PE8-3A, 8-3B

OBJ. 6 Describe the accounting for special-purpose cash funds.

Key Points Special-purpose cash funds, such as a petty cash fund or travel funds, are used by businesses to meet specific needs. Each fund is established by cashing a check for the amount of cash needed. At periodic intervals, the fund is replenished and the disbursements recorded.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the use of special-purpose cash funds.		
• Journalize the entry to establish a petty cash fund.	EE8-4	PE8-4A, 8-4B
• Journalize the entry to replenish a petty cash fund.	EE8-4	PE8-4A, 8-4B

OBJ. 7 Describe and illustrate the reporting of cash and cash equivalents in the financial statements.

Key Points Cash is listed as the first asset in the Current assets section of the balance sheet. Companies that have invested excess cash in highly liquid investments usually report *Cash and cash equivalents* on the balance sheet.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the reporting of cash and cash equivalents in the financial statements.		
• Illustrate the reporting of cash and cash equivalents in the financial statements.		

OBJ. 8 Describe and illustrate the use of the ratio of cash to monthly cash expenses to assess the ability of a company to continue in business.

Key Points The ratio of cash to monthly cash expenses is useful for assessing how long a company can continue to operate without (1) additional financing or (2) generating positive cash flows from operations.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the use of the ratio of cash to monthly cash expenses.		
• Compute the ratio of cash to monthly cash expenses.	EE8-5	PE 8-5A, 8-5B

Key Terms

bank reconciliation (371)
bank statement (368)
cash (365)
cash equivalents (376)
cash short and over account (366)
compensating balance (377)
control environment (361)
electronic funds transfer (EFT) (367)
elements of internal control (360)
employee fraud (360)
internal control (358)
petty cash fund (375)
ratio of cash to monthly cash expenses (377)
Sarbanes-Oxley Act of 2002 (358)
special-purpose funds (376)
voucher (368)
voucher system (368)

Illustrative Problem

The bank statement for Urethane Company for June 30, 2011, indicates a balance of $9,143.11. All cash receipts are deposited each evening in a night depository, after banking hours. The accounting records indicate the following summary data for cash receipts and payments for June:

Cash balance as of June 1	$ 3,943.50
Total cash receipts for June	28,971.60
Total amount of checks issued in June	28,388.85

Comparing the bank statement and the accompanying canceled checks and memos with the records reveals the following reconciling items:

a. The bank had collected for Urethane Company $1,030 on a note left for collection. The face amount of the note was $1,000.

b. A deposit of $1,852.21, representing receipts of June 30, had been made too late to appear on the bank statement.

c. Checks outstanding totaled $5,265.27.

d. A check drawn for $139 had been incorrectly charged by the bank as $157.

e. A check for $30 returned with the statement had been recorded in the company's records as $240. The check was for the payment of an obligation to Avery Equipment Company for the purchase of office supplies on account.

f. Bank service charges for June amounted to $18.20.

Instructions

1. Prepare a bank reconciliation for June.
2. Journalize the entries that should be made by Urethane Company.

Solution

1.

Urethane Company
Bank Reconciliation
June 30, 2011

Cash balance according to bank statement		$ 9,143.11
Add: Deposit of June 30 not recorded by bank	$1,852.21	
Bank error in charging check as $157 instead of $139	18.00	1,870.21
		$11,013.32
Deduct: Outstanding checks		5,265.27
Adjusted balance		$ 5,748.05
Cash balance according to company's records		$ 4,526.25*
Add: Proceeds of note collected by bank, including $30 interest	$1,030.00	
Error in recording check	210.00	1,240.00
		$ 5,766.25
Deduct: Bank service charges		18.20
Adjusted balance		$ 5,748.05

*$3,943.50 + $28,971.60 – $28,388.85

2.

June	30	Cash		1,240.00	
		Notes Receivable			1,000.00
		Interest Revenue			30.00
		Accounts Payable—Avery Equipment Company			210.00
	30	Miscellaneous Administrative Expense		18.20	
		Cash			18.20

Discussion Questions

1. (a) Name and describe the five elements of internal control. (b) Is any one element of internal control more important than another?

2. Why should the employee who handles cash receipts not have the responsibility for maintaining the accounts receivable records? Explain.

3. The ticket seller at a movie theater doubles as a ticket taker for a few minutes each day while the ticket taker is on a break. Which control procedure of a business's system of internal control is violated in this situation?

4. Why should the responsibility for maintaining the accounting records be separated from the responsibility for operations? Explain.

5. Assume that Peggy Gyger, accounts payable clerk for Patmen Inc., stole $193,750 by paying fictitious invoices for goods that were never received. The clerk set up accounts in the names of the fictitious companies and cashed the checks at a local bank. Describe a control procedure that would have prevented or detected the fraud.

6. Before a voucher for the purchase of merchandise is approved for payment, supporting documents should be compared to verify the accuracy of the liability. Give an example of supporting documents for the purchase of merchandise.

7. The balance of Cash is likely to differ from the bank statement balance. What two factors are likely to be responsible for the difference?

8. What is the purpose of preparing a bank reconciliation?

9. Smyrna Inc. has a petty cash fund of $900. (a) Since the petty cash fund is only $900, should Smyrna Inc. implement controls over petty cash? (b) What controls, if any, could be used for the petty cash fund?

10. (a) How are cash equivalents reported in the financial statements? (b) What are some examples of cash equivalents?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 2 **EE 8-1** *p. 365*

PE 8-1A Internal control elements

Identify each of the following as relating to (a) the control environment, (b) control procedures, or (c) information and communication.

1. Separating related operations
2. Report of internal auditors
3. Management's philosophy and operating style

OBJ. 2 **EE 8-1** *p. 365*

PE 8-1B Internal control elements

Identify each of the following as relating to (a) the control environment, (b) control procedures, or (c) monitoring.

1. Personnel policies
2. Safeguarding inventory in a locked warehouse
3. Hiring of external auditors to review the adequacy of controls

OBJ. 4 **EE 8-2** *p. 370*

PE 8-2A Items on company's bank statement

The following items may appear on a bank statement:

1. EFT payment
2. Note collected for company
3. Bank correction of an error from recording a $7,200 deposit as $2,700
4. Service charge

Using the format shown below, indicate whether each item would appear as a debit or credit memo on the bank statement and whether the item would increase or decrease the balance of the company's account.

Item No.	Appears on the Bank Statement as a Debit or Credit Memo	Increases or Decreases the Balance of the Company's Bank Account

OBJ. 4 **EE 8-2** *p. 370*

PE 8-2B Items on company's bank statement

The following items may appear on a bank statement:

1. NSF check
2. Bank correction of an error from posting another customer's check to the company's account
3. Loan proceeds
4. EFT deposit

Using the format shown below, indicate whether each item would appear as a debit or credit memo on the bank statement and whether the item would increase or decrease the balance of the company's account.

Item No.	Appears on the Bank Statement as a Debit or Credit Memo	Increases or Decreases the Balance of the Company's Bank Account

Learning Objectives *Example Exercises*

OBJ. 5 **EE 8-3** *p. 374*

PE 8-3A Bank reconciliation

The following data were gathered to use in reconciling the bank account of Azalea Company:

Balance per bank	$25,500
Balance per company records	27,475
Bank service charges	75
Deposit in transit	7,500
NSF check	3,400
Outstanding checks	9,000

a. What is the adjusted balance on the bank reconciliation?

b. Journalize any necessary entries for Azalea Company based on the bank reconciliation.

OBJ. 5 **EE 8-3** *p. 374*

PE 8-3B Bank reconciliation

The following data were gathered to use in reconciling the bank account of Bradford Company:

Balance per bank	$17,400
Balance per company records	5,765
Bank service charges	125
Deposit in transit	3,000
Note collected by bank with $360 interest	9,360
Outstanding checks	5,400

a. What is the adjusted balance on the bank reconciliation?

b. Journalize any necessary entries for Bradford Company based on the bank reconciliation.

OBJ. 6 **EE 8-4** *p. 376*

PE 8-4A Petty cash fund

Prepare journal entries for each of the following:

a. Issued a check to establish a petty cash fund of $800.

b. The amount of cash in the petty cash fund is $225. Issued a check to replenish the fund, based on the following summary of petty cash receipts: repair expense, $450 and miscellaneous selling expense, $75. Record any missing funds in the cash short and over account.

OBJ. 6 **EE 8-4** *p. 376*

PE 8-4B Petty cash fund

Prepare journal entries for each of the following:

a. Issued a check to establish a petty cash fund of $750.

b. The amount of cash in the petty cash fund is $325. Issued a check to replenish the fund, based on the following summary of petty cash receipts: store supplies, $300 and miscellaneous selling expense, $100. Record any missing funds in the cash short and over account.

OBJ. 8 **EE 8-5** *p. 378*

FAI

PE 8-5A Ratio of cash to monthly cash expenses

Financial data for Hauser Company are shown below.

	For Year Ending December 31, 2012
Cash on December 31, 2012	$ 58,800
Cash flow from operations	(72,000)

a. Compute the ratio of cash to monthly cash expenses.

b. Interpret the results computed in (a).

OBJ. 8 **EE 8-5** *p. 378*

FAI

PE 8-5B Ratio of cash to monthly cash expenses

Financial data for Preston Company are shown below.

	For Year Ending December 31, 2012
Cash on December 31, 2012	$ 184,800
Cash flow from operations	(158,400)

a. Compute the ratio of cash to monthly cash expenses.

b. Interpret the results computed in (a).

Exercises

OBJ. 1

EX 8-1 Sarbanes-Oxley internal control report

Using Wikpedia (**www.wikpedia.com**), look up the entry for Sarbanes-Oxley Act. Look over the table of contents and find the section that describes Section 404.

What does Section 404 require of management's internal control report?

OBJ. 2, 3

EX 8-2 Internal controls

Joan Whalen has recently been hired as the manager of Jittery Coffee Shop. Jittery Coffee Shop is a national chain of franchised coffee shops. During her first month as store manager, Joan encountered the following internal control situations:

a. Since only one employee uses the cash register, that employee is responsible for counting the cash at the end of the shift and verifying that the cash in the drawer matches the amount of cash sales recorded by the cash register. Joan expects each cashier to balance the drawer to the penny *every* time—no exceptions.

b. Joan caught an employee putting a case of 400 single-serving tea bags in her car. Not wanting to create a scene, Joan smiled and said, "I don't think you're putting those tea bags on the right shelf. Don't they belong inside the coffee shop?" The employee returned the tea bags to the stockroom.

c. Jittery Coffee Shop has one cash register. Prior to Joan's joining the coffee shop, each employee working on a shift would take a customer order, accept payment, and then prepare the order. Joan made one employee on each shift responsible for taking orders and accepting the customer's payment. Other employees prepare the orders.

State whether you agree or disagree with Joan's method of handling each situation and explain your answer.

OBJ. 2, 3

EX 8-3 Internal controls

Meridian Clothing is a retail store specializing in women's clothing. The store has established a liberal return policy for the holiday season in order to encourage gift purchases. Any item purchased during November and December may be returned through January 31, with a receipt, for cash or exchange. If the customer does not have a receipt, cash will still be refunded for any item under $50. If the item is more than $50, a check is mailed to the customer.

Whenever an item is returned, a store clerk completes a return slip, which the customer signs. The return slip is placed in a special box. The store manager visits the return counter approximately once every two hours to authorize the return slips. Clerks are instructed to place the returned merchandise on the proper rack on the selling floor as soon as possible.

This year, returns at Meridian Clothing have reached an all-time high. There are a large number of returns under $50 without receipts.

a. How can sales clerks employed at Meridian Clothing use the store's return policy to steal money from the cash register?

b. What internal control weaknesses do you see in the return policy that make cash thefts easier?

c. Would issuing a store credit in place of a cash refund for all merchandise returned without a receipt reduce the possibility of theft? List some advantages and disadvantages of issuing a store credit in place of a cash refund.

d. Assume that Meridian Clothing is committed to the current policy of issuing cash refunds without a receipt. What changes could be made in the store's procedures regarding customer refunds in order to improve internal control?

OBJ. 2, 3

EX 8-4 Internal controls for bank lending

Evergreen Bank provides loans to businesses in the community through its Commercial Lending Department. Small loans (less than $250,000) may be approved by an individual loan officer, while larger loans (greater than $250,000) must be approved by a board of loan officers. Once a loan is approved, the funds are made available to the loan applicant under agreed-upon terms. The president of Evergreen Bank has instituted a policy

whereby he has the individual authority to approve loans up to $10,000,000. The president believes that this policy will allow flexibility to approve loans to valued clients much quicker than under the previous policy.

As an internal auditor of Evergreen Bank, how would you respond to this change in policy?

OBJ. 2, 3

EX 8-5 Internal controls

One of the largest losses in history from unauthorized securities trading involved a securities trader for the French bank, Societe Generale. The trader was able to circumvent internal controls and create over $7 billion in trading losses in six months. The trader apparently escaped detection by using knowledge of the bank's internal control systems learned from a previous back-office monitoring job. Much of this monitoring involved the use of software to monitor trades. In addition, traders were usually kept to tight trading limits. Apparently, these controls failed in this case.

What general weaknesses in Societe Generale's internal controls contributed to the occurrence and size of the losses?

OBJ. 2, 3

EX 8-6 Internal controls

An employee of JHT Holdings, Inc., a trucking company, was responsible for resolving roadway accident claims under $25,000. The employee created fake accident claims and wrote settlement checks of between $5,000 and $25,000 to friends or acquaintances acting as phony "victims." One friend recruited subordinates at his place of work to cash some of the checks. Beyond this, the JHT employee also recruited lawyers, who he paid to represent both the trucking company and the fake victims in the bogus accident settlements. When the lawyers cashed the checks, they allegedly split the money with the corrupt JHT employee. This fraud went undetected for two years.

Why would it take so long to discover such a fraud?

OBJ. 2, 3

EX 8-7 Internal controls

Frog Sound Co. discovered a fraud whereby one of its front office administrative employees used company funds to purchase goods, such as computers, digital cameras, compact disk players, and other electronic items for her own use. The fraud was discovered when employees noticed an increase in delivery frequency from vendors and the use of unusual vendors. After some investigation, it was discovered that the employee would alter the description or change the quantity on an invoice in order to explain the cost on the bill.

What general internal control weaknesses contributed to this fraud?

OBJ. 2, 3

EX 8-8 Financial statement fraud

A former chairman, CFO, and controller of Donnkenny, Inc., an apparel company that makes sportswear for Pierre Cardin and Victoria Jones, pleaded guilty to financial statement fraud. These managers used false journal entries to record fictitious sales, hid inventory in public warehouses so that it could be recorded as "sold," and required sales orders to be backdated so that the sale could be moved back to an earlier period. The combined effect of these actions caused $25 million out of $40 million in quarterly sales to be phony.

a. Why might control procedures listed in this chapter be insufficient in stopping this type of fraud?

b. How could this type of fraud be stopped?

OBJ. 2, 3

EX 8-9 Internal control of cash receipts

The procedures used for over-the-counter receipts are as follows. At the close of each day's business, the sales clerks count the cash in their respective cash drawers, after which they determine the amount recorded by the cash register and prepare the memo cash form, noting any discrepancies. An employee from the cashier's office counts the cash, compares the total with the memo, and takes the cash to the cashier's office.

a. Indicate the weak link in internal control.

b. How can the weakness be corrected?

OBJ. 2, 3

EX 8-10 Internal control of cash receipts

Mel Lane works at the drive-through window of Bison Burgers. Occasionally, when a drive-through customer orders, Mel fills the order and pockets the customer's money. He does not ring up the order on the cash register.

Identify the internal control weaknesses that exist at Bison Burgers, and discuss what can be done to prevent this theft.

OBJ. 2, 3

EX 8-11 Internal control of cash receipts

The mailroom employees send all remittances and remittance advices to the cashier. The cashier deposits the cash in the bank and forwards the remittance advices and duplicate deposit slips to the Accounting Department.

a. Indicate the weak link in internal control in the handling of cash receipts.

b. How can the weakness be corrected?

OBJ. 2, 3

EX 8-12 Entry for cash sales; cash short

The actual cash received from cash sales was $27,943, and the amount indicated by the cash register total was $28,000. Journalize the entry to record the cash receipts and cash sales.

OBJ. 2, 3

EX 8-13 Entry for cash sales; cash over

The actual cash received from cash sales was $13,590, and the amount indicated by the cash register total was $13,540. Journalize the entry to record the cash receipts and cash sales.

OBJ. 2, 3

EX 8-14 Internal control of cash payments

Signs-A-Rama Co. is a small merchandising company with a manual accounting system. An investigation revealed that in spite of a sufficient bank balance, a significant amount of available cash discounts had been lost because of failure to make timely payments. In addition, it was discovered that the invoices for several purchases had been paid twice.

Outline procedures for the payment of vendors' invoices, so that the possibilities of losing available cash discounts and of paying an invoice a second time will be minimized.

OBJ. 2, 3

EX 8-15 Internal control of cash payments

Digit Tech Company, a communications equipment manufacturer, recently fell victim to a fraud scheme developed by one of its employees. To understand the scheme, it is necessary to review Digit Tech's procedures for the purchase of services.

The purchasing agent is responsible for ordering services (such as repairs to a photocopy machine or office cleaning) after receiving a service requisition from an authorized manager. However, since no tangible goods are delivered, a receiving report is not prepared. When the Accounting Department receives an invoice billing Digit Tech for a service call, the accounts payable clerk calls the manager who requested the service in order to verify that it was performed.

The fraud scheme involves Loretta Trent, the manager of plant and facilities. Loretta arranged for her uncle's company, Laser Systems, to be placed on Digit Tech's approved vendor list. Loretta did not disclose the family relationship.

On several occasions, Loretta would submit a requisition for services to be provided by Laser Systems. However, the service requested was really not needed, and it was never performed. Laser Systems would bill Digit Tech for the service and then split the cash payment with Loretta.

Explain what changes should be made to Digit Tech's procedures for ordering and paying for services in order to prevent such occurrences in the future.

OBJ. 5

EX 8-16 Bank reconciliation

Identify each of the following reconciling items as: (a) an addition to the cash balance according to the bank statement, (b) a deduction from the cash balance according to the bank statement, (c) an addition to the cash balance according to the company's records, or (d) a deduction from the cash balance according to the company's records. (None of the transactions reported by bank debit and credit memos have been recorded by the company.)

1. Bank service charges, $120.
2. Check of a customer returned by bank to company because of insufficient funds, $4,200.
3. Check for $240 incorrectly recorded by the company as $420.
4. Check for $1,000 incorrectly charged by bank as $10,000.
5. Deposit in transit, $24,950.
6. Outstanding checks, $18,100.
7. Note collected by bank, $15,600.

OBJ. 5

EX 8-17 Entries based on bank reconciliation

Which of the reconciling items listed in Exercise 8-16 require an entry in the company's accounts?

OBJ. 5

✔ Adjusted balance: $16,000

EX 8-18 Bank reconciliation

The following data were accumulated for use in reconciling the bank account of Maplewood Co. for July:

1. Cash balance according to the company's records at July 31, $15,600.
2. Cash balance according to the bank statement at July 31, $16,230.
3. Checks outstanding, $3,180.
4. Deposit in transit, not recorded by bank, $2,950.
5. A check for $270 in payment of an account was erroneously recorded in the check register as $720.
6. Bank debit memo for service charges, $50.

a. Prepare a bank reconciliation, using the format shown in Exhibit 7.

b. If the balance sheet were prepared for Maplewood Co. on July 31, what amount should be reported for cash?

c. Must a bank reconciliation always balance (reconcile)?

OBJ. 5

EX 8-19 Entries for bank reconciliation

Using the data presented in Exercise 8-18, journalize the entry or entries that should be made by the company.

OBJ. 5

EX 8-20 Entries for note collected by bank

Accompanying a bank statement for O'Fallon Company is a credit memo for $21,200, representing the principal ($20,000) and interest ($1,200) on a note that had been collected by the bank. The company had been notified by the bank at the time of the collection, but had made no entries. Journalize the entry that should be made by the company to bring the accounting records up to date.

OBJ. 5

✔ Adjusted balance: $14,000

EX 8-21 Bank reconciliation

An accounting clerk for Muskegon Co. prepared the following bank reconciliation:

Muskegon Co.
Bank Reconciliation
May 31, 2012

Cash balance according to company's records		$ 5,110
Add: Outstanding checks	$2,500	
Error by Muskegon Co. in recording Check No. 2219 as $810 instead of $180	630	
Note for $8,000 collected by bank, including interest	8,320	11,450
		$16,560
Deduct: Deposit in transit on May 31	$5,200	
Bank service charges	60	5,260
Cash balance according to bank statement		$11,300

a. From the data in the above bank reconciliation, prepare a new bank reconciliation for Muskegon Co., using the format shown in the illustrative problem.

b. If a balance sheet were prepared for Muskegon Co. on May 31, 2012, what amount should be reported for cash?

OBJ. 5

✔ Corrected adjusted balance: $13,000

EX 8-22 Bank reconciliation

Identify the errors in the following bank reconciliation:

Alma Co.
Bank Reconciliation
For the Month Ended November 30, 2012

Cash balance according to bank statement			$12,090
Add outstanding checks:			
No. 915		$ 850	
960		615	
964		850	
965		775	3,090
			$15,180
Deduct deposit of November 30, not recorded by bank			4,000
Adjusted balance			$11,180
Cash balance according to company's records			$ 4,430
Add: Proceeds of note collected by bank:			
Principal	$5,000		
Interest	200	$5,200	
Service charges		30	5,230
			$ 9,660
Deduct: Check returned because of insufficient funds		$1,100	
Error in recording November 23 deposit of $6,100 as $1,600		4,500	5,600
Adjusted balance			$ 4,060

OBJ. 2, 3, 5

EX 8-23 Using bank reconciliation to determine cash receipts stolen

Lasting Impressions Co. records all cash receipts on the basis of its cash register tapes. Lasting Impressions Co. discovered during April 2012 that one of its sales clerks had stolen an undetermined amount of cash receipts when she took the daily deposits to the bank. The following data have been gathered for April:

Cash in bank according to the general ledger	$ 8,900
Cash according to the April 30, 2012, bank statement	20,500
Outstanding checks as of April 30, 2012	6,800
Bank service charge for April	100
Note receivable, including interest collected by bank in April	10,400

No deposits were in transit on April 30.

a. Determine the amount of cash receipts stolen by the sales clerk.

b. What accounting controls would have prevented or detected this theft?

OBJ. 6

EX 8-24 Petty cash fund entries

Journalize the entries to record the following:

a. Check No. 6300 is issued to establish a petty cash fund of $1,200.

b. The amount of cash in the petty cash fund is now $200. Check No. 6527 is issued to replenish the fund, based on the following summary of petty cash receipts: office supplies, $650; miscellaneous selling expense, $230; miscellaneous administrative expense, $90. (Since the amount of the check to replenish the fund plus the balance in the fund do not equal $1,200, record the discrepancy in the cash short and over account.)

OBJ. 7

EX 8-25 Variation in cash flows

Mattel, Inc., designs, manufactures, and markets toy products worldwide. Mattel's toys include Barbie™ fashion dolls and accessories, Hot Wheels™, and Fisher-Price brands. For a recent year, Mattel reported the following net cash flows from operating activities (in thousands):

First quarter ending March 31	$ (214,807)
Second quarter ending June 30	(135,003)
Third quarter ending September 30	31,003
Fourth quarter December 31	1,102,915

Explain why Mattel reported negative net cash flows from operating activities during the first two quarters, a small positive net cash flow in the third quarter, and a large positive cash flow for the fourth quarter with overall net positive cash flow for the year.

OBJ. 8

FAI

EX 8-26 Cash to monthly cash expenses ratio

During 2012, Pierport Inc. has monthly cash expenses of $400,000. On December 31, 2012, the cash balance is $3,600,000.

a. Compute the ratio of cash to monthly cash expenses.

b. Based on (a), what are the implications for Pierport Inc.?

OBJ. 8

FAI

EX 8-27 Cash to monthly cash expenses ratio

Delta Air Lines, one of the world's largest airlines, provides passenger and cargo services throughout the United States and the world. Delta reported the following financial data (in millions) for the year ended December 31, 2008:

Net cash flows from operating activities	$(1,707)
Cash and cash equivalents, December 31, 2008	4,255

a. Determine the monthly cash expenses. Round to one decimal place.

b. Determine the ratio of cash to monthly cash expenses. Round to one decimal place.

c. Based on your analysis, do you believe that Delta will remain in business?

OBJ. 8

FAI

EX 8-28 Cash to monthly cash expenses ratio

Allos Therapeutics, Inc., is a biopharmaceutical company that develops drugs for the treatment of cancer. Allos Therapeutics reported the following financial data (in thousands) for the years ending December 31, 2008, 2007, and 2006.

	For Years Ending December 31		
	2008	2007	2006
Cash and cash equivalents	$ 30,696	$ 16,103	$ 10,437
Net cash flows from operations	(42,850)	(30,823)	(25,147)

a. Determine the monthly cash expenses for 2008, 2007, and 2006. Round to one decimal place.

b. Determine the ratio of cash to monthly cash expenses as of December 31, 2008, 2007, and 2006. Round to one decimal place.

c. Based on (a) and (b), comment on Allos Therapeutics' ratio of cash to monthly operating expenses for 2008, 2007, and 2006.

Problems Series A

OBJ. 2, 3

PR 8-1A Evaluating internal control of cash

The following procedures were recently installed by Pine Creek Company:

a. Along with petty cash expense receipts for postage, office supplies, etc., several postdated employee checks are in the petty cash fund.

b. After necessary approvals have been obtained for the payment of a voucher, the treasurer signs and mails the check. The treasurer then stamps the voucher and supporting documentation as paid and returns the voucher and supporting documentation to the accounts payable clerk for filing.

c. At the end of each day, all cash receipts are placed in the bank's night depository.

d. The accounts payable clerk prepares a voucher for each disbursement. The voucher along with the supporting documentation is forwarded to the treasurer's office for approval.

e. At the end of each day, an accounting clerk compares the duplicate copy of the daily cash deposit slip with the deposit receipt obtained from the bank.

f. The bank reconciliation is prepared by the cashier, who works under the supervision of the treasurer.

g. All mail is opened by the mail clerk, who forwards all cash remittances to the cashier. The cashier prepares a listing of the cash receipts and forwards a copy of the list to the accounts receivable clerk for recording in the accounts.

h. At the end of the day, cash register clerks are required to use their own funds to make up any cash shortages in their registers.

Instructions

Indicate whether each of the procedures of internal control over cash represents (1) a strength or (2) a weakness. For each weakness, indicate why it exists.

OBJ. 3, 6

PR 8-2A Transactions for petty cash, cash short and over

Picasso Restoration Company completed the following selected transactions during August 2012:

Aug. 1. Established a petty cash fund of $750.

10. The cash sales for the day, according to the cash register records, totaled $9,780. The actual cash received from cash sales was $9,800.

31. Petty cash on hand was $240. Replenished the petty cash fund for the following disbursements, each evidenced by a petty cash receipt:

    Aug. 3. Store supplies, $251.

    7. Express charges on merchandise sold, $60 (Delivery Expense).

    9. Office supplies, $20.

    13. Office supplies, $30.

    19. Postage stamps, $11 (Office Supplies).

    21. Repair to office file cabinet lock, $40 (Miscellaneous Administrative Expense).

Aug. 22. Postage due on special delivery letter, $18 (Miscellaneous Administrative Expense).

24. Express charges on merchandise sold, $50 (Delivery Expense).

30. Office supplies, $15.

31. The cash sales for the day, according to the cash register records, totaled $11,200. The actual cash received from cash sales was $11,130.

31. Decreased the petty cash fund by $100.

Instructions

Journalize the transactions.

OBJ. 5

✔ 1. Adjusted balance: $11,400

PR 8-3A Bank reconciliation and entries

The cash account for Online Medical Co. at June 30, 2012, indicated a balance of $9,375. The bank statement indicated a balance of $10,760 on June 30, 2012. Comparing the bank statement and the accompanying canceled checks and memos with the records revealed the following reconciling items:

a. Checks outstanding totaled $3,900.

b. A deposit of $4,000, representing receipts of June 30, had been made too late to appear on the bank statement.

c. The bank had collected $2,100 on a note left for collection. The face of the note was $2,000.

d. A check for $550 returned with the statement had been incorrectly recorded by Online Medical Co. as $500. The check was for the payment of an obligation to Hirsch Co. for the purchase on account.

e. A check drawn for $60 had been erroneously charged by the bank as $600.

f. Bank service charges for June amounted to $25.

Instructions

1. Prepare a bank reconciliation.
2. Journalize the necessary entries. The accounts have not been closed.
3. If a balance sheet were prepared for Online Medical Co. on June 30, 2012, what amount should be reported as cash?

OBJ. 5

✔ 1. Adjusted balance: $23,750

PR 8-4A Bank reconciliation and entries

The cash account for Bravo Bike Co. at May 1, 2012, indicated a balance of $15,085. During May, the total cash deposited was $75,100 and checks written totaled $69,750. The bank statement indicated a balance of $25,460 on May 31. Comparing the bank statement, the canceled checks, and the accompanying memos with the records revealed the following reconciling items:

a. Checks outstanding totaled $11,360.

b. A deposit of $9,200, representing receipts of May 31, had been made too late to appear on the bank statement.

c. The bank had collected for Bravo Bike Co. $4,725 on a note left for collection. The face of the note was $4,500.

d. A check for $490 returned with the statement had been incorrectly charged by the bank as $940.

e. A check for $410 returned with the statement had been recorded by Bravo Bike Co. as $140. The check was for the payment of an obligation to Portage Co. on account.

f. Bank service charges for July amounted to $40.

g. A check for $1,100 from Elkhart Co. was returned by the bank because of insufficient funds.

Instructions

1. Prepare a bank reconciliation as of May 31.
2. Journalize the necessary entries. The accounts have not been closed.
3. If a balance sheet were prepared for Bravo Bike Co. on May 31, 2012, what amount should be reported as cash?

OBJ. 5

✔ 1. Adjusted balance: $13,900.50

PR 8-5A Bank reconciliation and entries

Oneida Furniture Company deposits all cash receipts each Wednesday and Friday in a night depository, after banking hours. The data required to reconcile the bank statement as of June 30 have been taken from various documents and records and are reproduced as follows. The sources of the data are printed in capital letters. All checks were written for payments on account.

CASH ACCOUNT:	
Balance as of June 1	$9,317.40
CASH RECEIPTS FOR MONTH OF JUNE	$9,524.16
DUPLICATE DEPOSIT TICKETS:	
Date and amount of each deposit in June:	

Date	Amount	Date	Amount	Date	Amount
June 1	$1,080.50	June 10	$ 896.61	June 22	$ 897.34
3	854.17	15	882.95	24	942.71
8	845.00	17	1,607.64	30	1,517.24

CHECKS WRITTEN:

Number and amount of each check issued in June:

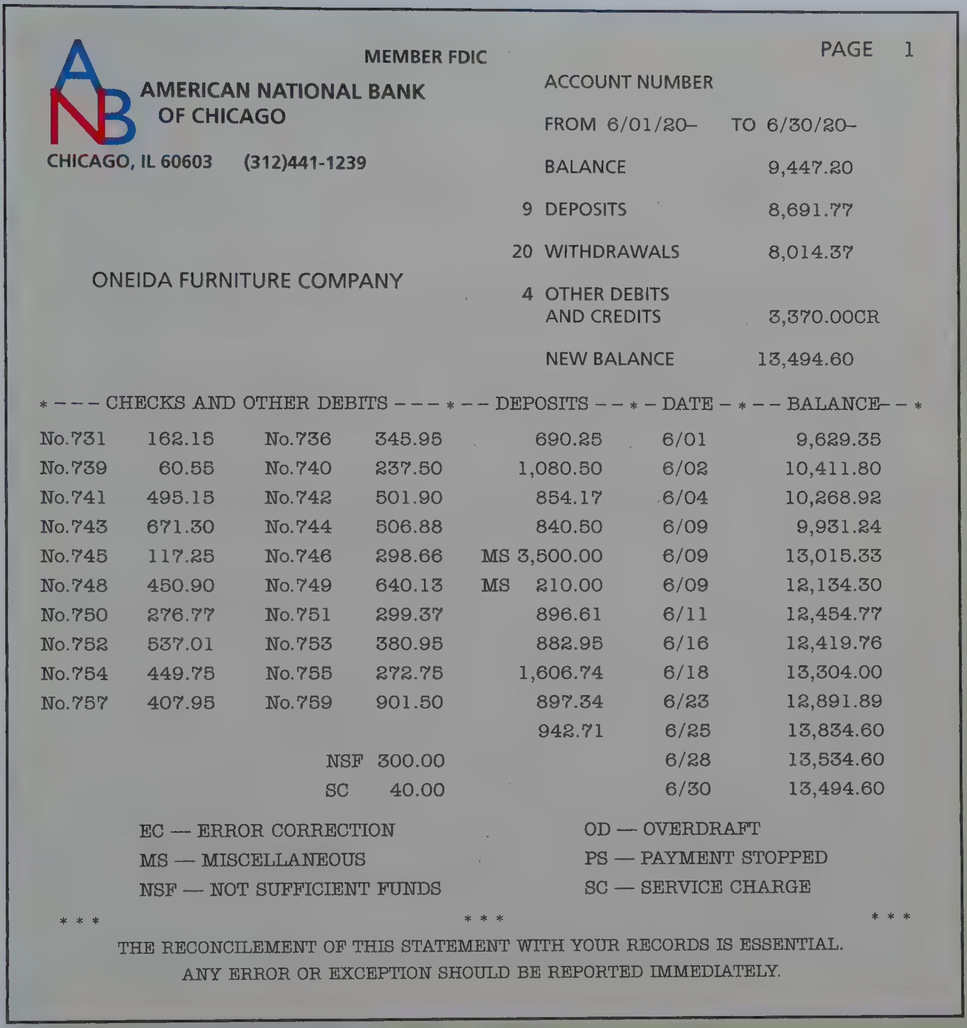
Check No.	Amount	Check No.	Amount	Check No.	Amount
740	$237.50	747	Void	754	$ 449.75
741	495.15	748	$450.90	755	272.75
742	501.90	749	640.13	756	113.95
743	671.30	750	276.77	757	407.95
744	560.88	751	299.37	758	259.60
745	117.25	752	537.01	759	901.50
746	298.66	753	380.95	760	486.39
Total amount of checks issued in June					$8,359.66

BANK RECONCILIATION FOR PRECEDING MONTH:

Oneida Furniture Company
Bank Reconciliation
May 31, 20—

Cash balance according to bank statement		$ 9,447.20
Add deposit for May 31, not recorded by bank		690.25
		$10,137.45
Deduct outstanding checks:		
No. 731	$162.15	
736	345.95	
738	251.40	
739	60.55	820.05
Adjusted balance		$ 9,317.40
Cash balance according to company's records		$ 9,352.50
Deduct service charges		35.10
Adjusted balance		$ 9,317.40

JUNE BANK STATEMENT:



MEMBER FDIC

AMERICAN NATIONAL BANK
OF CHICAGO

CHICAGO, IL 60603 (312)441-1239

PAGE 1

ACCOUNT NUMBER

FROM 6/01/20– TO 6/30/20–

	BALANCE	9,447.20
9	DEPOSITS	8,691.77
20	WITHDRAWALS	8,014.37
4	OTHER DEBITS AND CREDITS	3,370.00CR
	NEW BALANCE	13,494.60

ONEIDA FURNITURE COMPANY

CHECKS AND OTHER DEBITS				DEPOSITS	DATE	BALANCE
No.731	162.15	No.736	345.95	690.25	6/01	9,629.35
No.739	60.55	No.740	237.50	1,080.50	6/02	10,411.80
No.741	495.15	No.742	501.90	854.17	6/04	10,268.92
No.743	671.30	No.744	506.88	840.50	6/09	9,931.24
No.745	117.25	No.746	298.66	MS 3,500.00	6/09	13,015.33
No.748	450.90	No.749	640.13	MS 210.00	6/09	12,134.30
No.750	276.77	No.751	299.37	896.61	6/11	12,454.77
No.752	537.01	No.753	380.95	882.95	6/16	12,419.76
No.754	449.75	No.755	272.75	1,606.74	6/18	13,304.00
No.757	407.95	No.759	901.50	897.34	6/23	12,891.89
				942.71	6/25	13,834.60
		NSF	300.00		6/28	13,534.60
		SC	40.00		6/30	13,494.60

EC — ERROR CORRECTION
MS — MISCELLANEOUS
NSF — NOT SUFFICIENT FUNDS
OD — OVERDRAFT
PS — PAYMENT STOPPED
SC — SERVICE CHARGE

* * *

THE RECONCILEMENT OF THIS STATEMENT WITH YOUR RECORDS IS ESSENTIAL.
ANY ERROR OR EXCEPTION SHOULD BE REPORTED IMMEDIATELY.

Instructions

1. Prepare a bank reconciliation as of June 30. If errors in recording deposits or checks are discovered, assume that the errors were made by the company. Assume that all deposits are from cash sales. All checks are written to satisfy accounts payable.
2. Journalize the necessary entries. The accounts have not been closed.
3. What is the amount of Cash that should appear on the balance sheet as of June 30?
4. Assume that a canceled check for $270 has been incorrectly recorded by the bank as $720. Briefly explain how the error would be included in a bank reconciliation and how it should be corrected.

Problems Series B

OBJ. 2, 3

PR 8-1B Evaluate internal control of cash

The following procedures were recently installed by The Blind Shop:

a. At the end of a shift, each cashier counts the cash in his or her cash register, unlocks the cash register record, and compares the amount of cash with the amount on the record to determine cash shortages and overages.

b. Checks received through the mail are given daily to the accounts receivable clerk for recording collections on account and for depositing in the bank.

c. Each cashier is assigned a separate cash register drawer to which no other cashier has access.

d. Vouchers and all supporting documents are perforated with a PAID designation after being paid by the treasurer.

e. All sales are rung up on the cash register, and a receipt is given to the customer. All sales are recorded on a record locked inside the cash register.

f. Disbursements are made from the petty cash fund only after a petty cash receipt has been completed and signed by the payee.

g. The bank reconciliation is prepared by the cashier.

Instructions

Indicate whether each of the procedures of internal control over cash represents (1) a strength or (2) a weakness. For each weakness, indicate why it exists.

OBJ. 3, 6

PR 8-2B Transactions for petty cash, cash short and over

Cedar Springs Company completed the following selected transactions during November 2012:

Nov. 1. Established a petty cash fund of $850.

12. The cash sales for the day, according to the cash register records, totaled $16,100. The actual cash received from cash sales was $16,175.

30. Petty cash on hand was $70. Replenished the petty cash fund for the following disbursements, each evidenced by a petty cash receipt:

  Nov. 2. Store supplies, $100.

  10. Express charges on merchandise purchased, $260 (Merchandise Inventory).

  14. Office supplies, $125.

  15. Office supplies, $80.

  18. Postage stamps, $70 (Office Supplies).

  20. Repair to fax, $35 (Miscellaneous Administrative Expense).

  21. Repair to office door lock, $15 (Miscellaneous Administrative Expense).

  22. Postage due on special delivery letter, $40 (Miscellaneous Administrative Expense).

  28. Express charges on merchandise purchased, $40 (Merchandise Inventory).

30. The cash sales for the day, according to the cash register records, totaled $19,415. The actual cash received from cash sales was $19,350.

30. Increased the petty cash fund by $150.

Instructions

Journalize the transactions.

OBJ. 5

✔ 1. Adjusted balance: $27,000

PR 8-3B Bank reconciliation and entries

The cash account for Ambulance Systems at February 29, 2012, indicated a balance of $20,580. The bank statement indicated a balance of $24,750 on February 29, 2012. Comparing the bank statement and the accompanying canceled checks and memos with the records reveals the following reconciling items:

a. Checks outstanding totaled $9,300.

b. A deposit of $12,000, representing receipts of February 29, had been made too late to appear on the bank statement.

c. The bank had collected $6,240 on a note left for collection. The face of the note was $6,000.

d. A check for $140 returned with the statement had been incorrectly recorded by Ambulance Systems as $410. The check was for the payment of an obligation to Holland Co. for the purchase of office supplies on account.

e. A check drawn for $725 had been incorrectly charged by the bank as $275.

f. Bank service charges for February amounted to $90.

Instructions

1. Prepare a bank reconciliation.
2. Journalize the necessary entries. The accounts have not been closed.
3. If a balance sheet were prepared for Ambulance Systems on February 29, 2012, what amount should be reported as cash?

OBJ. 5

✓ 1. Adjusted balance: $30,175

PR 8-4B Bank reconciliation and entries

The cash account for South Bay Sports Co. on April 1, 2012, indicated a balance of $35,025. During April, the total cash deposited was $83,150, and checks written totaled $90,000. The bank statement indicated a balance of $34,345 on April 30, 2012. Comparing the bank statement, the canceled checks, and the accompanying memos with the records revealed the following reconciling items:

a. Checks outstanding totaled $7,700.

b. A deposit of $3,800, representing receipts of April 30, had been made too late to appear on the bank statement.

c. A check for $960 had been incorrectly charged by the bank as $690.

d. A check for $150 returned with the statement had been recorded by South Bay Sports Co. as $1,500. The check was for the payment of an obligation to Jones Co. on account.

e. The bank had collected for South Bay Sports Co. $2,600 on a note left for collection. The face of the note was $2,500.

f. Bank service charges for June amounted to $50.

g. A check for $1,900 from Valley Schools Academy was returned by the bank because of insufficient funds.

Instructions

1. Prepare a bank reconciliation as of April 30.
2. Journalize the necessary entries. The accounts have not been closed.
3. If a balance sheet were prepared for South Bay Sports Co. on April 30, 2012, what amount should be reported as cash?

OBJ. 5

✓ 1. Adjusted balance: $11,200.00

PR 8-5B Bank reconciliation and entries

La Casa Interiors deposits all cash receipts each Wednesday and Friday in a night depository, after banking hours. The data required to reconcile the bank statement as of July 31 have been taken from various documents and records and are reproduced as follows. The sources of the data are printed in capital letters. All checks were written for payments on account.

BANK RECONCILIATION FOR PRECEDING MONTH (DATED JUNE 30):		
Cash balance according to bank statement		$ 9,422.80
Add deposit of June 30, not recorded by bank		780.80
		$10,203.60
Deduct outstanding checks:		
No. 580	$310.10	
No. 602	85.50	
No. 612	92.50	
No. 613	137.50	625.60
Adjusted balance		$ 9,578.00
Cash balance according to company's records		$ 9,605.70
Deduct service charges		27.70
Adjusted balance		$ 9,578.00
CASH ACCOUNT:		
Balance as of July 1		$ 9,578.00

CHECKS WRITTEN:

Number and amount of each check issued in July:

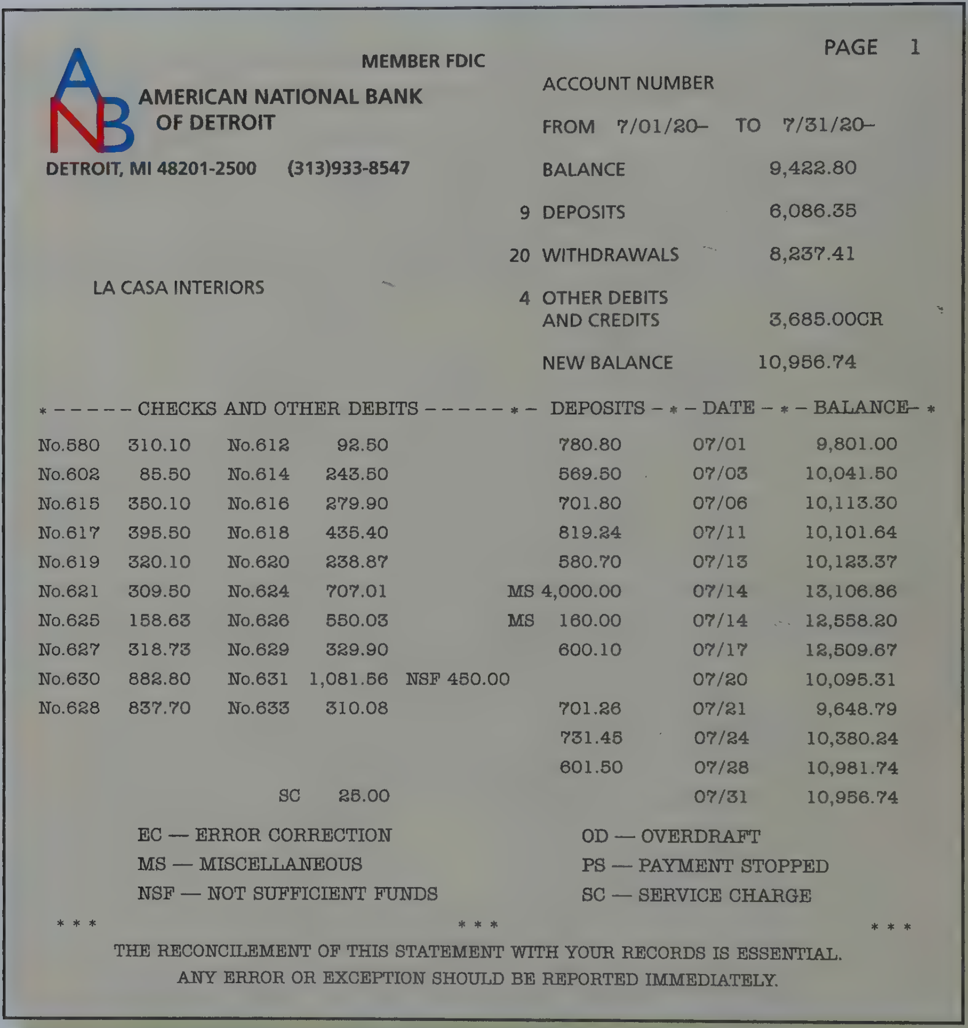
Check No.	Amount	Check No.	Amount	Check No.	Amount
614	$243.50	621	$309.50	628	$ 837.70
615	350.10	622	Void	629	329.90
616	279.90	623	Void	630	882.80
617	395.50	624	707.01	631	1,081.56
618	435.40	625	185.63	632	325.40
619	320.10	626	550.03	633	310.08
620	238.87	627	318.73	634	241.71
Total amount of checks issued in July					$8,343.42
CASH RECEIPTS FOR MONTH OF JULY					6,247.12

DUPLICATE DEPOSIT TICKETS:

Date and amount of each deposit in July:

Date	Amount	Date	Amount	Date	Amount
July 2	$569.50	July 12	$580.70	July 23	$731.45
5	701.80	16	600.10	26	601.50
9	812.94	19	701.26	31	947.87

JULY BANK STATEMENT:



MEMBER FDIC

PAGE 1

AMERICAN NATIONAL BANK
OF DETROIT

DETROIT, MI 48201-2500 (313)933-8547

ACCOUNT NUMBER

FROM 7/01/20– TO 7/31/20–

BALANCE 9,422.80

9 DEPOSITS 6,086.35

20 WITHDRAWALS 8,237.41

4 OTHER DEBITS AND CREDITS 3,685.00CR

NEW BALANCE 10,956.74

LA CASA INTERIORS

CHECKS AND OTHER DEBITS					DEPOSITS	DATE	BALANCE
No.580	310.10	No.612	92.50		780.80	07/01	9,801.00
No.602	85.50	No.614	243.50		569.50	07/03	10,041.50
No.615	350.10	No.616	279.90		701.80	07/06	10,113.30
No.617	395.50	No.618	435.40		819.24	07/11	10,101.64
No.619	320.10	No.620	238.87		580.70	07/13	10,123.37
No.621	309.50	No.624	707.01		MS 4,000.00	07/14	13,106.86
No.625	158.63	No.626	550.03		MS 160.00	07/14	12,558.20
No.627	318.73	No.629	329.90		600.10	07/17	12,509.67
No.630	882.80	No.631	1,081.56	NSF 450.00		07/20	10,095.31
No.628	837.70	No.633	310.08		701.26	07/21	9,648.79
					731.45	07/24	10,380.24
					601.50	07/28	10,981.74
		SC	25.00			07/31	10,956.74

EC — ERROR CORRECTION
MS — MISCELLANEOUS
NSF — NOT SUFFICIENT FUNDS

OD — OVERDRAFT
PS — PAYMENT STOPPED
SC — SERVICE CHARGE

* * *

THE RECONCILEMENT OF THIS STATEMENT WITH YOUR RECORDS IS ESSENTIAL.
ANY ERROR OR EXCEPTION SHOULD BE REPORTED IMMEDIATELY.

Instructions

1. Prepare a bank reconciliation as of July 31. If errors in recording deposits or checks are discovered, assume that the errors were made by the company. Assume that all deposits are from cash sales. All checks are written to satisfy accounts payable.
2. Journalize the necessary entries. The accounts have not been closed.
3. What is the amount of Cash that should appear on the balance sheet as of July 31?
4. Assume that a canceled check for $325 has been incorrectly recorded by the bank as $3,250. Briefly explain how the error would be included in a bank reconciliation and how it should be corrected.

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

son/Tetra Images/Jupiter Images

CHAPTER
9

Receivables

Oakley, Inc.

The sale and purchase of merchandise involves the exchange of goods for cash. However, the point at which cash actually changes hands varies with the transaction. Consider transactions by **Oakley, Inc.**, a worldwide leader in the design, development, manufacture, and distribution of premium sunglasses, goggles, prescription eyewear, apparel, footwear, and accessories. Not only does the company sell its products through three different company-owned retail chains, but it also has approximately 10,000 independent distributors.

If you were to buy a pair of sunglasses at an Oakley Vault, which is one of the company's retail outlet stores, you would have to pay cash or use a credit card to pay for the glasses before you left the store. However, Oakley allows its distributors to purchase sunglasses "on account." These sales on account are recorded as receivables due from the distributors.

As an individual, you also might build up a trusted financial history with a local company or department store that would allow you to purchase merchandise on account. Like Oakley's distributors, your purchase on account would be recorded as an account receivable. Such credit transactions facilitate sales and are a significant current asset for many businesses.

This chapter describes common classifications of receivables, illustrates how to account for uncollectible receivables, and demonstrates the reporting of receivables on the balance sheet.

Learning Objectives

After studying this chapter, you should be able to:	*Example Exercises*		*Page*
Obj. 1 Describe the common classes of receivables.			
Classification of Receivables			
Accounts Receivable			
Notes Receivable			
Other Receivables			
Obj. 2 Describe the accounting for uncollectible receivables.			
Uncollectible Receivables			
Obj. 3 Describe the direct write-off method of accounting for uncollectible receivables.			
Direct Write-Off Method for Uncollectible Accounts	**EE 9-1**		402
Obj. 4 Describe the allowance method of accounting for uncollectible receivables.			
Allowance Method for Uncollectible Accounts			
Write-Offs to the Allowance Account	**EE 9-2**		405
Estimating Uncollectibles	**EE 9-3**	excel success	406
	EE 9-4		409
Obj. 5 Compare the direct write-off and allowance methods of accounting for uncollectible accounts.			
Comparing Direct Write-Off and Allowance Methods			
Obj. 6 Describe the accounting for notes receivable.			
Notes Receivable			
Characteristics of Notes Receivable			
Accounting for Notes Receivable	**EE 9-5**	excel success	414
Obj. 7 Describe the reporting of receivables on the balance sheet.			
Reporting Receivables on the Balance Sheet			
Obj. 8 Describe and illustrate the use of accounts receivable turnover and number of days' sales in receivables to evaluate a company's efficiency in collecting its receivables.			
Financial Analysis and Interpretation: Accounts Receivable Turnover and Number of Days' Sales in Receivables	**EE 9-6**		416

At a Glance 9 Page 417

Obj. 1 Describe the common classes of receivables.

Classification of Receivables

The receivables that result from sales on account are normally accounts receivable or notes receivable. The term **receivables** includes all money claims against other entities, including people, companies, and other organizations. Receivables are usually a significant portion of the total current assets.

Accounts Receivable

The most common transaction creating a receivable is selling merchandise or services on account (on credit). The receivable is recorded as a debit to Accounts Receivable. Such **accounts receivable** are normally collected within a short period, such as 30 or 60 days. They are classified on the balance sheet as a current asset.

An annual report of La-Z-Boy Incorporated reported that receivables made up over 46% of La-Z-Boy's current assets.

Notes Receivable

Notes receivable are amounts that customers owe for which a formal, written instrument of credit has been issued. If notes receivable are expected to be collected within a year, they are classified on the balance sheet as a current asset.

Notes are often used for credit periods of more than 60 days. For example, an automobile dealer may require a down payment at the time of sale and accept a note or a series of notes for the remainder. Such notes usually provide for monthly payments.

Notes may also be used to settle a customer's account receivable. Notes and accounts receivable that result from sales transactions are sometimes called *trade receivables*. In this chapter, all notes and accounts receivable are from sales transactions.

Other Receivables

Other receivables include interest receivable, taxes receivable, and receivables from officers or employees. Other receivables are normally reported separately on the balance sheet. If they are expected to be collected within one year, they are classified as current assets. If collection is expected beyond one year, they are classified as noncurrent assets and reported under the caption *Investments*.

Uncollectible Receivables

OBJ. 2 Describe the accounting for uncollectible receivables.

In prior chapters, the accounting for sales of merchandise or services on account (on credit) was described and illustrated. A major issue that has not yet been discussed is that some customers will not pay their accounts. That is, some accounts receivable will be uncollectible.

Companies may shift the risk of uncollectible receivables to other companies. For example, some retailers do not accept sales on account, but will only accept cash or credit cards. Such policies shift the risk to the credit card companies.

Companies may also sell their receivables. This is often the case when a company issues its own credit card. For example, Macy's and JCPenney issue their own credit cards. Selling receivables is called *factoring* the receivables. The buyer of the receivables is called a *factor*. An advantage of factoring is that the company selling its receivables immediately receives cash for operating and other needs. Also, depending on the factoring agreement, some of the risk of uncollectible accounts is shifted to the factor.

Regardless of how careful a company is in granting credit, some credit sales will be uncollectible. The operating expense recorded from uncollectible receivables is called **bad debt expense**, *uncollectible accounts expense*, or *doubtful accounts expense*.

There is no general rule for when an account becomes uncollectible. Some indications that an account may be uncollectible include the following:

1. The receivable is past due.
2. The customer does not respond to the company's attempts to collect.
3. The customer files for bankruptcy.
4. The customer closes its business.
5. The company cannot locate the customer.

Adams, Stevens & Bradley, Ltd. is a collection agency that operates on a contingency basis. That is, its fees are based on what it collects.

If a customer doesn't pay, a company may turn the account over to a collection agency. After the collection agency attempts to collect payment, any remaining balance in the account is considered worthless.

The two methods of accounting for uncollectible receivables are as follows:

1. The **direct write-off method** records bad debt expense only when an account is determined to be worthless.
2. The **allowance method** records bad debt expense by estimating uncollectible accounts at the end of the accounting period.

The direct write-off method is often used by small companies and companies with few receivables.[1] Generally accepted accounting principles (GAAP), however, require companies with a large amount of receivables to use the allowance method. As a result, most well-known companies such as General Electric, Pepsi, Intel, and FedEx use the allowance method.

Direct Write-Off Method for Uncollectible Accounts

OBJ. 3 Describe the direct write-off method of accounting for uncollectible receivables.

Under the direct write-off method, Bad Debt Expense is not recorded until the customer's account is determined to be worthless. At that time, the customer's account receivable is written off.

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[1] The direct write-off method is also required for federal income tax purposes.

To illustrate, assume that a $4,200 account receivable from D. L. Ross has been determined to be uncollectible. The entry to write off the account is as follows:

May	10	Bad Debt Expense		4,200	
		Accounts Receivable—D. L. Ross			4,200

An account receivable that has been written off may be collected later. In such cases, the account is reinstated by an entry that reverses the write-off entry. The cash received in payment is then recorded as a receipt on account.

To illustrate, assume that the D. L. Ross account of $4,200 written off on May 10 is later collected on November 21. The reinstatement and receipt of cash is recorded as follows:

Nov.	21	Accounts Receivable—D. L. Ross		4,200	
		Bad Debt Expense			4,200
	21	Cash		4,200	
		Accounts Receivable—D. L. Ross			4,200

The direct write-off method is used by businesses that sell most of their goods or services for cash or through the acceptance of MasterCard or VISA, which are recorded as cash sales. In such cases, receivables are a small part of the current assets and any bad debt expense is small. Examples of such businesses are a restaurant, a convenience store, and a small retail store.

Example Exercise 9-1 Direct Write-off Method

OBJ. 3

Journalize the following transactions using the direct write-off method of accounting for uncollectible receivables:

July 9. Received $1,200 from Jay Burke and wrote off the remainder owed of $3,900 as uncollectible.
Oct. 11. Reinstated the account of Jay Burke and received $3,900 cash in full payment.

Follow My Example 9-1

July 9	Cash	1,200	
	Bad Debt Expense	3,900	
	Accounts Receivable—Jay Burke		5,100
Oct. 11	Accounts Receivable—Jay Burke	3,900	
	Bad Debt Expense		3,900
11	Cash	3,900	
	Accounts Receivable—Jay Burke		3,900

Practice Exercises: **PE 9-1A, PE 9-1B**

OBJ. 4 Describe the allowance method of accounting for uncollectible receivables.

Allowance Method for Uncollectible Accounts

The allowance method estimates the uncollectible accounts receivable at the end of the accounting period. Based on this estimate, Bad Debt Expense is recorded by an adjusting entry.

To illustrate, assume that ExTone Company began operations August 1. As of the end of its accounting period on December 31, 2011, ExTone has an accounts receivable balance of $200,000. This balance includes some past due accounts. Based on

industry averages, ExTone estimates that $30,000 of the December 31 accounts receivable will be uncollectible. However, on December 31, ExTone doesn't know which customer accounts will be uncollectible. Thus, specific customer accounts cannot be decreased or credited. Instead, a contra asset account, **Allowance for Doubtful Accounts**, is credited for the estimated bad debts.

Using the $30,000 estimate, the following adjusting entry is made on December 31:

2011 Dec.	31	Bad Debt Expense		30,000	
		Allowance for Doubtful Accounts			30,000
		Uncollectible accounts estimate.			

The preceding adjusting entry affects the income statement and balance sheet. On the income statement, the $30,000 of Bad Debt Expense will be matched against the related revenues of the period. On the balance sheet, the value of the receivables is reduced to the amount that is expected to be collected or realized. This amount, $170,000 ($200,000 – $30,000), is called the **net realizable value** of the receivables.

After the preceding adjusting entry is recorded, Accounts Receivable still has a debit balance of $200,000. This balance is the total amount owed by customers on account on December 31 as supported by the accounts receivable subsidiary ledger. The accounts receivable contra account, Allowance for Doubtful Accounts, has a credit balance of $30,000.

Note:
The adjusting entry reduces receivables to their net realizable value and matches the uncollectible expense with revenues.

Integrity, Objectivity, and Ethics in Business

SELLER BEWARE

A company in financial distress will still try to purchase goods and services on account. In these cases, rather than "buyer beware," it is more like "seller beware." Sellers must be careful in advancing credit to such companies, because trade creditors have low priority for cash payments in the event of bankruptcy. To help suppliers, third-party services specialize in evaluating court actions and payment decisions of financially distressed companies.

Write-Offs to the Allowance Account

When a customer's account is identified as uncollectible, it is written off against the allowance account. This requires the company to remove the specific accounts receivable and an equal amount from the allowance account.

To illustrate, on January 21, 2012, John Parker's account of $6,000 with ExTone Company is written off as follows:

2012 Jan.	21	Allowance for Doubtful Accounts		6,000	
		Accounts Receivable—John Parker			6,000

At the end of a period, Allowance for Doubtful Accounts will normally have a balance. This is because Allowance for Doubtful Accounts is based on an estimate. As a result, the total write-offs to the allowance account during the period will rarely equal the balance of the account at the beginning of the period. The allowance account will have a credit balance at the end of the period if the write-offs during the period are less than the beginning balance. It will have a debit balance if the write-offs exceed the beginning balance.

To illustrate, assume that during 2012 ExTone Company writes off $26,750 of uncollectible accounts, including the $6,000 account of John Parker recorded on January 21. Allowance for Doubtful Accounts will have a credit balance of $3,250 ($30,000 – $26,750), as shown below.

ALLOWANCE FOR DOUBTFUL ACCOUNTS

				Jan. 1	Balance	30,000
Total accounts written off $26,750	Jan.	21	6,000			
	Feb.	2	3,900			
	⋮		⋮			
				Dec. 31	Unadjusted balance	3,250

If ExTone Company had written off $32,100 in accounts receivable during 2012, Allowance for Doubtful Accounts would have a debit balance of $2,100, as shown below.

ALLOWANCE FOR DOUBTFUL ACCOUNTS

				Jan. 1	Balance	30,000
Total accounts written off $32,100	Jan.	21	6,000			
	Feb.	2	3,900			
	⋮		⋮			
Dec. 31	Unadjusted balance		2,100			

The allowance account balances (credit balance of $3,250 and debit balance of $2,100) in the preceding illustrations are *before* the end-of-period adjusting entry. After the end-of-period adjusting entry is recorded, Allowance for Doubtful Accounts should always have a credit balance.

An account receivable that has been written off against the allowance account may be collected later. Like the direct write-off method, the account is reinstated by an entry that reverses the write-off entry. The cash received in payment is then recorded as a receipt on account.

To illustrate, assume that Nancy Smith's account of $5,000 which was written off on April 2 is collected later on June 10. ExTone Company records the reinstatement and the collection as follows:

June	10	Accounts Receivable—Nancy Smith	5,000	
		Allowance for Doubtful Accounts		5,000
	10	Cash	5,000	
		Accounts Receivable—Nancy Smith		5,000

Example Exercise 9-2 Allowance Method

OBJ. 4

Journalize the following transactions using the allowance method of accounting for uncollectible receivables.

July 9. Received $1,200 from Jay Burke and wrote off the remainder owed of $3,900 as uncollectible.
Oct. 11. Reinstated the account of Jay Burke and received $3,900 cash in full payment.

Follow My Example 9-2

July 9	Cash	1,200	
	Allowance for Doubtful Accounts	3,900	
	Accounts Receivable—Jay Burke		5,100
Oct. 11	Accounts Receivable—Jay Burke	3,900	
	Allowance for Doubtful Accounts		3,900
11	Cash	3,900	
	Accounts Receivable—Jay Burke		3,900

Practice Exercises: **PE 9-2A, PE 9-2B**

Estimating Uncollectibles

The allowance method requires an estimate of uncollectible accounts at the end of the period. This estimate is normally based on past experience, industry averages, and forecasts of the future.

The two methods used to estimate uncollectible accounts are as follows:

1. Percent of sales method.
2. Analysis of receivables method.

Percent of Sales Method Since accounts receivable are created by credit sales, uncollectible accounts can be estimated as a percent of credit sales. If the portion of credit sales to sales is relatively constant, the percent may be applied to total sales or net sales.

Business Connection

ALLOWANCE PERCENTAGES ACROSS COMPANIES

The percent of the allowance for doubtful accounts to total accounts receivable will vary across companies and industries. For example, the following percentages were computed from recent annual reports:

HCA's higher percent of allowance for doubtful accounts to total accounts receivable is due in part because Medicare reimbursements are often less than the amounts billed patients.

Company	Industry	Percent of Allowance for Doubtful Accounts to Total Accounts Receivable
Apple Inc.	Computer/technology products	1.5%
Deere & Company	Farm machinery & equipment	17.1
Delta Air Lines	Transportation services	2.8
HCA Inc.	Health services	59.0
Sears	Retail	4.8

To illustrate, assume the following data for ExTone Company on December 31, 2012, before any adjustments:

Balance of Accounts Receivable	$ 240,000
Balance of Allowance for Doubtful Accounts	3,250 (Cr.)
Total credit sales	3,000,000
Bad debt as a percent of credit sales	¾%

Bad Debt Expense of $22,500 is estimated as follows:

Bad Debt Expense = Credit Sales × Bad Debt as a Percent of Credit Sales
Bad Debt Expense = $3,000,000 × ¾% = $22,500

The adjusting entry for uncollectible accounts on December 31, 2012, is as follows:

Dec.	31	Bad Debt Expense		22,500	
		Allowance for Doubtful Accounts			22,500
		Uncollectible accounts estimate			
		($3,000,000 × ¾% = $22,500).			

After the adjusting entry is posted to the ledger, Bad Debt Expense will have an adjusted balance of $22,500. Allowance for Doubtful Accounts will have an adjusted balance of $25,750 ($3,250 + $22,500). Both T accounts are shown below.

BAD DEBT EXPENSE

Dec. 31	Adjusting entry	22,500	
Dec. 31	Adjusted balance	22,500	

ALLOWANCE FOR DOUBTFUL ACCOUNTS

			Jan. 1	Balance	30,000
Total accounts written off $26,750	Jan. 21	6,000			
	Feb. 2	3,900			
	⋮	⋮			
			Dec. 31	Unadjusted balance	3,250
			Dec. 31	Adjusting entry	22,500
			Dec. 31	Adjusted balance	25,750

Under the percent of sales method, the amount of the adjusting entry is the amount estimated for Bad Debt Expense. This estimate is credited to whatever the unadjusted balance is for Allowance for Doubtful Accounts.

Note:
The estimate based on sales is added to any balance in Allowance for Doubtful Accounts.

To illustrate, assume that in the preceding example the unadjusted balance of Allowance for Doubtful Accounts on December 31, 2012, had been a $2,100 debit balance instead of a $3,250 credit balance. The adjustment would still have been $22,500. However, the December 31, 2012, ending adjusted balance of Allowance for Doubtful Accounts would have been $20,400 ($22,500 − $2,100).

Example Exercise 9-3 Percent of Sales Method

OBJ. 4

At the end of the current year, Accounts Receivable has a balance of $800,000; Allowance for Doubtful Accounts has a credit balance of $7,500; and net sales for the year total $3,500,000. Bad debt expense is estimated at ½ of 1% of net sales.

Determine (a) the amount of the adjusting entry for uncollectible accounts; (b) the adjusted balances of Accounts Receivable, Allowance for Doubtful Accounts, and Bad Debt Expense; and (c) the net realizable value of accounts receivable.

Follow My Example 9-3

a. $17,500 ($3,500,000 × 0.005)

		Adjusted Balance
b.	Accounts Receivable	$800,000
	Allowance for Doubtful Accounts ($7,500 + $17,500)	25,000
	Bad Debt Expense	17,500

c. $775,000 ($800,000 − $25,000)

Practice Exercises: **PE 9-3A, PE 9-3B**

Analysis of Receivables Method The analysis of receivables method is based on the assumption that the longer an account receivable is outstanding, the less likely that it will be collected. The analysis of receivables method is applied as follows:

Step 1. The due date of each account receivable is determined.

Step 2. The number of days each account is past due is determined. This is the number of days between the due date of the account and the date of the analysis.

Step 3. Each account is placed in an aged class according to its days past due. Typical aged classes include the following:

- Not past due
- 1–30 days past due
- 31–60 days past due
- 61–90 days past due
- 91–180 days past due
- 181–365 days past due
- Over 365 days past due

Step 4. The totals for each aged class are determined.

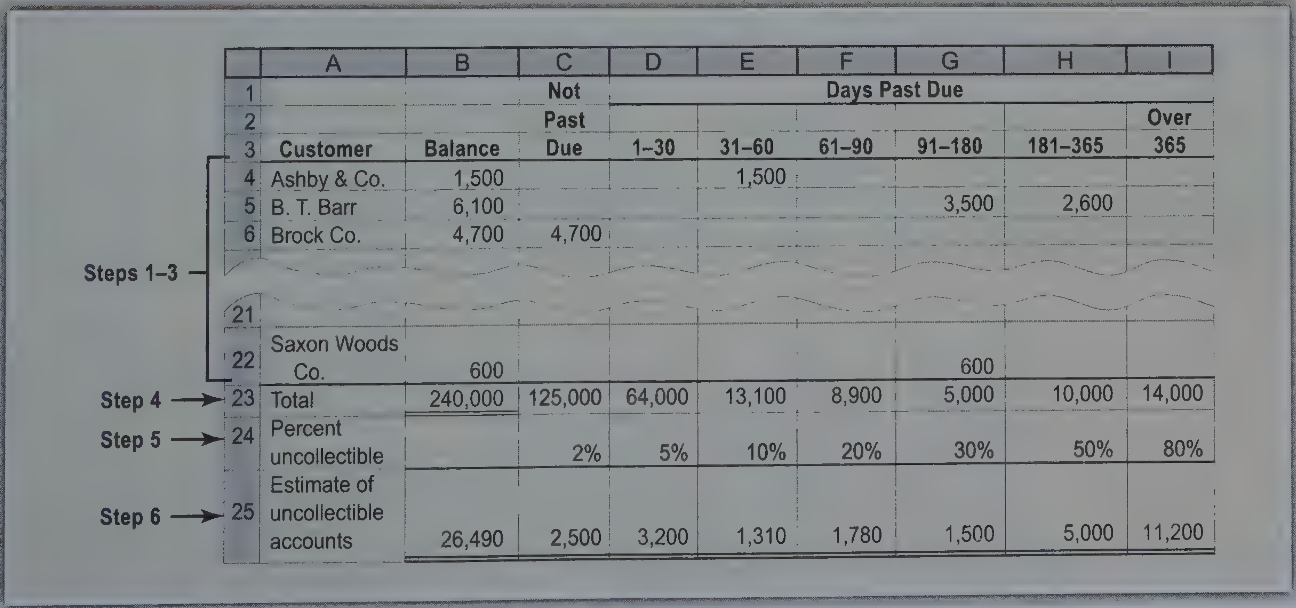
Step 5. The total for each aged class is multiplied by an estimated percentage of uncollectible accounts for that class.

Step 6. The estimated total of uncollectible accounts is determined as the sum of the uncollectible accounts for each aged class.

The preceding steps are summarized in an aging schedule, and this overall process is called **aging the receivables.**

To illustrate, assume that ExTone Company uses the analysis of receivables method instead of the percent of sales method. ExTone prepared an aging schedule for its accounts receivable of $240,000 as of December 31, 2012, as shown in Exhibit 1.

EXHIBIT 1 **Aging of Receivables Schedule, December 31, 2012**



	A	B	C	D	E	F	G	H	I
1			Not			Days Past Due			
2			Past						Over
3	Customer	Balance	Due	1–30	31–60	61–90	91–180	181–365	365
4	Ashby & Co.	1,500			1,500				
5	B. T. Barr	6,100					3,500	2,600	
6	Brock Co.	4,700	4,700						
21									
22	Saxon Woods Co.	600					600		
23	Total	240,000	125,000	64,000	13,100	8,900	5,000	10,000	14,000
24	Percent uncollectible		2%	5%	10%	20%	30%	50%	80%
25	Estimate of uncollectible accounts	26,490	2,500	3,200	1,310	1,780	1,500	5,000	11,200

Assume that ExTone Company sold merchandise to Saxon Woods Co. on August 29 with terms 2/10, n/30. Thus, the due date (Step 1) of Saxon Woods' account is September 28, as shown below.

Credit terms, net	30 days
Less: Aug. 29 to Aug. 31	2 days
Days in September	28 days

As of December 31, Saxon Woods' account is 94 days past due (Step 2), as shown below.

Number of days past due in September	2 days (30 – 28)
Number of days past due in October	31 days
Number of days past due in November	30 days
Number of days past due in December	31 days
Total number of days past due	94 days

Exhibit 1 shows that the $600 account receivable for Saxon Woods Co. was placed in the 91–180 days past due class (Step 3).

The total for each of the aged classes is determined (Step 4). Exhibit 1 shows that $125,000 of the accounts receivable are not past due, while $64,000 are 1–30 days past due. ExTone Company applies a different estimated percentage of uncollectible accounts to the totals of each of the aged classes (Step 5). As shown in Exhibit 1, the percent is 2% for accounts not past due, while the percent is 80% for accounts over 365 days past due.

The sum of the estimated uncollectible accounts for each aged class (Step 6) is the estimated uncollectible accounts on December 31, 2012. This is the desired adjusted balance for Allowance for Doubtful Accounts. For ExTone Company, this amount is $26,490, as shown in Exhibit 1.

Comparing the estimate of $26,490 with the unadjusted balance of the allowance account determines the amount of the adjustment for Bad Debt Expense. For ExTone, the unadjusted balance of the allowance account is a credit balance of $3,250. The amount to be added to this balance is therefore $23,240 ($26,490 – $3,250). The adjusting entry is as follows:

Note:
The estimate based on receivables is compared to the balance in the allowance account to determine the amount of the adjusting entry.

Dec.	31	Bad Debt Expense		23,240	
		Allowance for Doubtful Accounts			23,240
		Uncollectible accounts estimate			
		($26,490 – $3,250).			

After the preceding adjusting entry is posted to the ledger, Bad Debt Expense will have an adjusted balance of $23,240. Allowance for Doubtful Accounts will have an adjusted balance of $26,490, and the net realizable value of the receivables is $213,510 ($240,000 – $26,490). Both T accounts are shown below.

BAD DEBT EXPENSE

Dec. 31	Adjusting entry	23,240			
Dec. 31	Adjusted balance	23,240			

ALLOWANCE FOR DOUBTFUL ACCOUNTS

			Dec. 31	Unadjusted balance	3,250
			Dec. 31	Adjusting entry	23,240
			Dec. 31	Adjusted balance	26,490

Under the analysis of receivable method, the amount of the adjusting entry is the amount that will yield an adjusted balance for Allowance for Doubtful Accounts equal to that estimated by the aging schedule.

To illustrate, if the unadjusted balance of the allowance account had been a debit balance of $2,100, the amount of the adjustment would have been $28,590 ($26,490 + $2,100). In this case, Bad Debt Expense would have an adjusted balance of $28,590. However, the adjusted balance of Allowance for Doubtful Accounts would still have been $26,490. After the adjusting entry is posted, both T accounts are shown below.

BAD DEBT EXPENSE

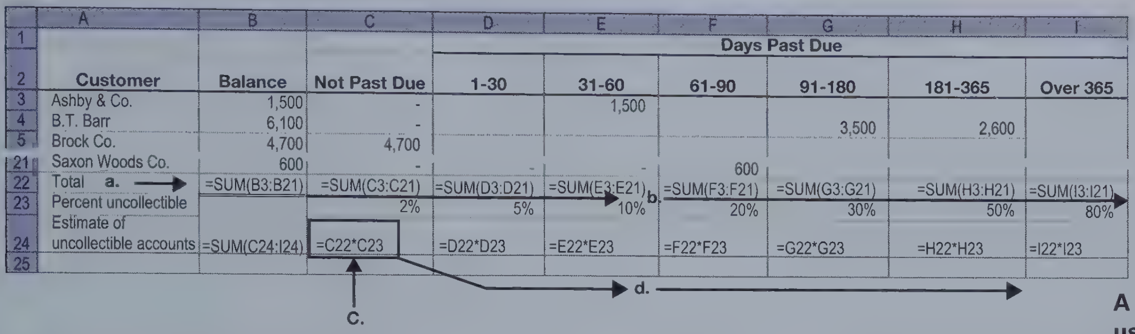
Dec. 31	Adjusting entry	28,590			
Dec. 31	Adjusted balance	28,590			

ALLOWANCE FOR DOUBTFUL ACCOUNTS

Dec. 31	Unadjusted balance	2,100			
			Dec. 31	Adjusting entry	28,590
			Dec. 31	Adjusted balance	26,490

excel success

The aging of receivables schedule from *Exhibit 1* can be developed using spreadsheet software as follows:



	A	B	C	D	E	F	G	H	I
1				Days Past Due					
2	Customer	Balance	Not Past Due	1-30	31-60	61-90	91-180	181-365	Over 365
3	Ashby & Co.	1,500	-		1,500				
4	B.T. Barr	6,100	-				3,500	2,600	
5	Brock Co.	4,700	4,700						
21	Saxon Woods Co.	600	-	-	-	600			
22	Total	=SUM(B3:B21)	=SUM(C3:C21)	=SUM(D3:D21)	=SUM(E3:E21)	=SUM(F3:F21)	=SUM(G3:G21)	=SUM(H3:H21)	=SUM(I3:I21)
23	Percent uncollectible		2%	5%	10%	20%	30%	50%	80%
24	Estimate of uncollectible accounts	=SUM(C24:I24)	=C22*C23	=D22*D23	=E22*E23	=F22*F23	=G22*G23	=H22*H23	=I22*I23
25									

Develop the formulas by the following steps:

- **a.** Enter a formula in B22 to sum the "Balance" column, =SUM(B3:B21).
- **b.** Copy the formula from B22 to C22:I22 so that the sum formula applies to all *Days Past Due* categories.
- **c.** Enter a formula in C24 to multiply the sum in C22 by the percent uncollectible in C23, =C22*C23.
- **d.** Copy the formula from C24 to D24:I24 so that the multiplication formula applies to all *Days Past Due* categories.
- **e.** Enter a formula in B24 to sum the total estimated uncollectible for each period, =SUM(C24:I24).

A spreadsheet uses the asterisk symbol (*) for multiplication.

TryIt Go to the hands-on ***Excel Tutor*** for this example!

Example Exercise 9-4 Analysis of Receivables Method

OBJ. 4

At the end of the current year, Accounts Receivable has a balance of $800,000; Allowance for Doubtful Accounts has a credit balance of $7,500; and net sales for the year total $3,500,000. Using the aging method, the balance of Allowance for Doubtful Accounts is estimated as $30,000.

Determine (a) the amount of the adjusting entry for uncollectible accounts; (b) the adjusted balances of Accounts Receivable, Allowance for Doubtful Accounts, and Bad Debt Expense; and (c) the net realizable value of accounts receivable.

Follow My Example 9-4

a. $22,500 ($30,000 – $7,500)

		Adjusted Balance
b.	Accounts Receivable	$800,000
	Allowance for Doubtful Accounts	30,000
	Bad Debt Expense	22,500

c. $770,000 ($800,000 – $30,000)

Practice Exercises: **PE 9-4A, PE 9-4B**

Comparing Estimation Methods Both the percent of sales and analysis of receivables methods estimate uncollectible accounts. However, each method has a slightly different focus and financial statement emphasis.

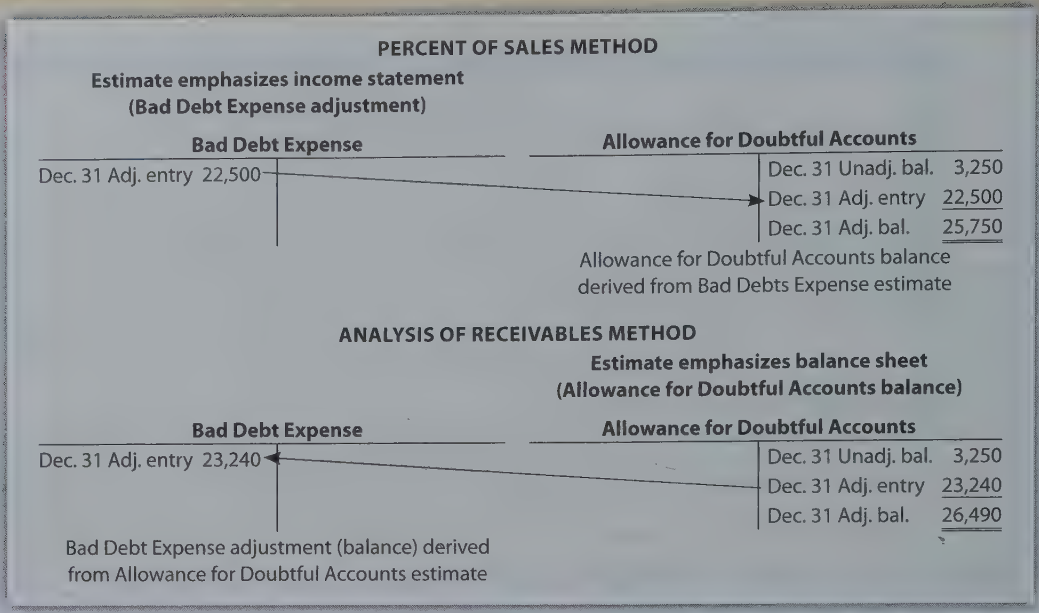
Under the percent of sales method, Bad Debt Expense is the focus of the estimation process. The percent of sales method places more emphasis on matching revenues and expenses and, thus, emphasizes the income statement. That is, the amount of the adjusting entry is based on the estimate of Bad Debt Expense for the period. Allowance for Doubtful Accounts is then credited for this amount.

Under the analysis of receivables method, Allowance for Doubtful Accounts is the focus of the estimation process. The analysis of receivables method places more emphasis on the net realizable value of the receivables and, thus, emphasizes the balance sheet. That is, the amount of the adjusting entry is the amount that will yield an adjusted balance for Allowance for Doubtful Accounts equal to that estimated by the aging schedule. Bad Debt Expense is then debited for this amount.

Exhibit 2 summarizes these differences between the percent of sales and the analysis of receivables methods. Exhibit 2 also shows the results of the ExTone Company illustration for the percent of sales and analysis of receivables methods. The amounts shown in Exhibit 2 assume an unadjusted credit balance of $3,250 for Allowance for

EXHIBIT 2

Difference Between Estimation Methods



Doubtful Accounts. While the methods normally yield different amounts for any one period, over several periods the amounts should be similar.

OBJ. 5 Compare the direct write-off and allowance methods of accounting for uncollectible accounts.

Comparing Direct Write-Off and Allowance Methods

Journal entries for the direct write-off and allowance methods are illustrated and compared in this section. As a basis for illustration, the following transactions, taken from the records of Hobbs Co. for the year ending December 31, 2011, are used:

Mar. 1. Wrote off account of C. York, $3,650.
Apr. 12. Received $2,250 as partial payment on the $5,500 account of Cary Bradshaw. Wrote off the remaining balance as uncollectible.
June 22. Received the $3,650 from C. York, which had been written off on March 1. Reinstated the account and recorded the cash receipt.
Sept. 7. Wrote off the following accounts as uncollectible (record as one journal entry):

Jason Bigg	$1,100	Stanford Noonan	$1,360
Steve Bradey	2,220	Aiden Wyman	990
Samantha Neeley	775		

Dec. 31. Hobbs Company uses the percent of credit sales method of estimating uncollectible expenses. Based on past history and industry averages, 1.25% of credit sales are expected to be uncollectible. Hobbs recorded $3,400,000 of credit sales during 2011.

Exhibit 3 illustrates the journal entries for Hobbs Company using the direct write-off and allowance methods. Using the direct write-off method, there is no adjusting entry on December 31 for uncollectible accounts. In contrast, the allowance method records an adjusting entry for estimated uncollectible accounts of $42,500.

The primary differences between the direct write-off and allowance methods are summarized below.

	Direct Write-Off Method	Allowance Method
Bad debt expense is recorded	When the specific customer accounts are determined to be uncollectible.	Using estimate based on (1) a percent of sales or (2) an analysis of receivables.
Allowance account	No allowance account is used.	The allowance account is used.
Primary users	Small companies and companies with few receivables.	Large companies and those with a large amount of receivables.

EXHIBIT 3 Comparing Direct Write-Off and Allowance Methods

		Direct Write-Off Method			Allowance Method		
2011 Mar.	1	Bad Debt Expense	3,650		Allowance for Doubtful Accounts	3,650	
		Accounts Receivable—C. York		3,650	Accounts Receivable—C. York		3,650
Apr.	12	Cash	2,250		Cash	2,250	
		Bad Debt Expense	3,250		Allowance for Doubtful Accounts	3,250	
		Accounts Receivable—Cary Bradshaw		5,500	Accounts Receivable—Cary Bradshaw		5,500
June	22	Accounts Receivable—C. York	3,650		Accounts Receivable—C. York	3,650	
		Bad Debt Expense		3,650	Allowance for Doubtful Accounts		3,650
	22	Cash	3,650		Cash	3,650	
		Accounts Receivable—C. York		3,650	Accounts Receivable—C. York		3,650
Sept.	7	Bad Debt Expense	6,445		Allowance for Doubtful Accounts	6,445	
		Accounts Receivable—Jason Bigg		1,100	Accounts Receivable—Jason Bigg		1,100
		Accounts Receivable—Steve Bradey		2,220	Accounts Receivable—Steve Bradey		2,220
		Accounts Receivable—Samantha Neeley		775	Accounts Receivable—Samantha Neeley		775
		Accounts Receivable—Stanford Noonan		1,360	Accounts Receivable—Stanford Noonan		1,360
		Accounts Receivable—Aiden Wyman		990	Accounts Receivable—Aiden Wyman		990
Dec.	31	No Entry			Bad Debt Expense	42,500	
					Allowance for Doubtful Accounts		42,500
					Uncollectible accounts estimate ($3,400,000 × 0.0125 = $42,500).		

Notes Receivable

OBJ. 6 Describe the accounting for notes receivable.

A note has some advantages over an account receivable. By signing a note, the debtor recognizes the debt and agrees to pay it according to its terms. Thus, a note is a stronger legal claim.

Characteristics of Notes Receivable

A promissory note is a written promise to pay the face amount, usually with interest, on demand or at a date in the future.[2] Characteristics of a promissory note are as follows:

1. The *maker* is the party making the promise to pay.
2. The *payee* is the party to whom the note is payable.
3. The *face amount* is the amount for which the note is written on its face.
4. The *issuance date* is the date a note is issued.
5. The *due date* or *maturity date* is the date the note is to be paid.
6. The *term* of a note is the amount of time between the issuance and due dates.
7. The *interest rate* is that rate of interest that must be paid on the face amount for the term of the note.

Exhibit 4 illustrates a promissory note. The maker of the note is Selig Company, and the payee is Pearland Company. The face value of the note is $2,000, and the

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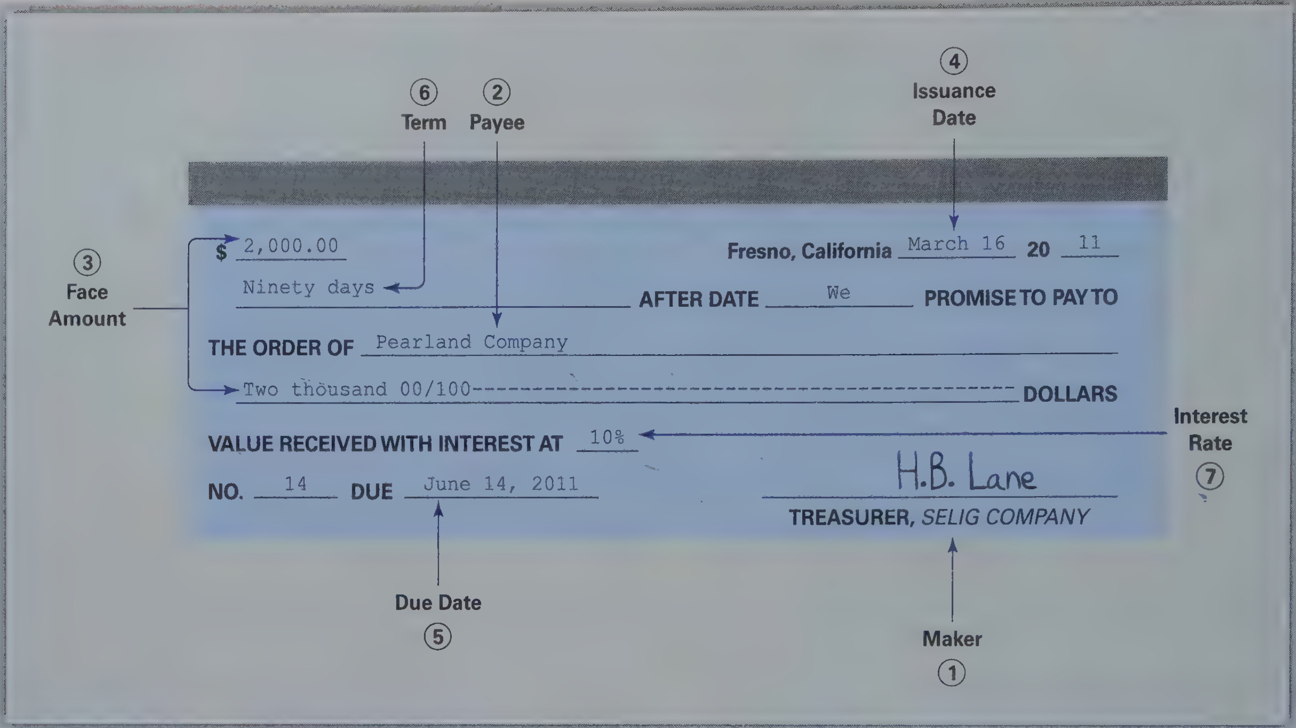
[2] You may see references to noninterest-bearing notes. Such notes are not widely used and carry an assumed or implicit interest rate.

EXHIBIT 4 **Promissory Note**



$ 2,000.00 Fresno, California March 16 20 11

Ninety days AFTER DATE We PROMISE TO PAY TO

THE ORDER OF Pearland Company

Two thousand 00/100-- DOLLARS

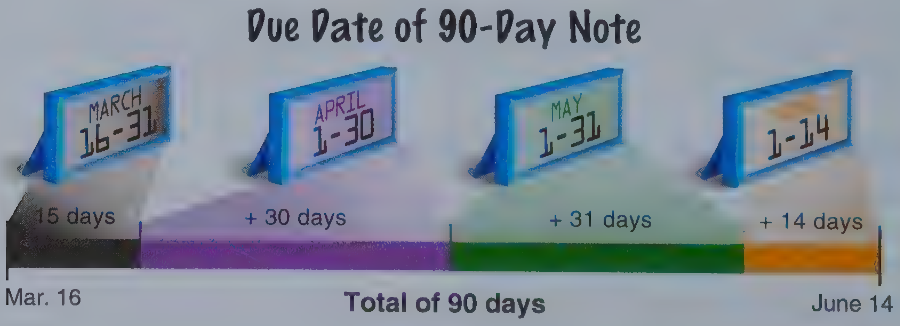
VALUE RECEIVED WITH INTEREST AT 10%

NO. 14 DUE June 14, 2011 H.B. Lane

TREASURER, *SELIG COMPANY*

issuance date is March 16, 2011. The term of the note is 90 days, which results in a due date of June 14, 2011, as shown below.

Days in March	31 days
Minus issuance date of note	16
Days remaining in March	15 days
Add days in April	30
Add days in May	31
Add days in June (due date of June 14)	14
Term of note	90 days



In Exhibit 4, the term of the note is 90 days and has an interest rate of 10%. The interest on a note is computed as follows:

Interest = Face Amount × Interest Rate × (Term/360 days)

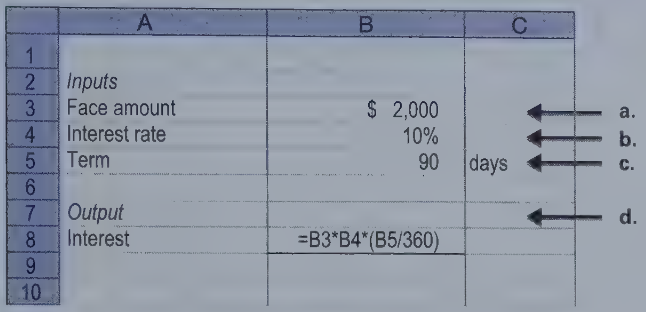
The interest rate is stated on an annual (yearly) basis, while the term is expressed as days. Thus, the interest on the note in Exhibit 4 is computed as follows:

Interest = $2,000 × 10% × (90/360) = $50

To simplify, 360 days per year will be used. In practice, companies such as banks and mortgage companies use the exact number of days in a year, 365.

The **maturity value** is the amount that must be paid at the due date of the note, which is the sum of the face amount and the interest. The maturity value of the note in Exhibit 4 is $2,050 ($2,000 + $50).

excel success The interest on a note can be computed using a simple spreadsheet formula shown as follows:



	A	B	C
1			
2	*Inputs*		
3	Face amount	$ 2,000	
4	Interest rate	10%	
5	Term	90	days
6			
7	*Output*		
8	Interest	=B3*B4*(B5/360)	
9			
10			

There are three *inputs to* enter as follows:

- **a.** Enter the face amount in cell B3 (in this example, 2,000).
- **b.** Enter the interest rate in cell B4 (in this example, 10%).
- **c.** Enter the term in cell B5 (in this example, 90, expressed in days).
- **d.** The output is a formula entered in B8 that determines the interest, =B3*B4*(B5/360).

Also, although the parentheses are not required, it is good programming practice.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Accounting for Notes Receivable

A promissory note may be received by a company from a customer to replace an account receivable. In such cases, the promissory note is recorded as a note receivable.[3]

To illustrate, assume that a company accepts a 30-day, 12% note dated November 21, 2012, in settlement of the account of W. A. Bunn Co., which is past due and has a balance of $6,000. The company records the receipt of the note as follows:

Nov.	21	Notes Receivable—W. A. Bunn Co.		6,000	
		Accounts Receivable—W. A. Bunn Co.			6,000

At the due date, the company records the receipt of $6,060 ($6,000 face amount plus $60 interest) as follows:

Dec.	21	Cash		6,060	
		Notes Receivable—W. A. Bunn Co.			6,000
		Interest Revenue			60
		[$6,060 = $6,000 + ($6,000 × 12% × 30/360)].			

If the maker of a note fails to pay the note on the due date, the note is a **dishonored note receivable**. A company that holds a dishonored note transfers the face amount of the note plus any interest due back to an accounts receivable account. For example, assume that the $6,000, 30-day, 12% note received from W. A. Bunn Co. and recorded on November 21 is dishonored. The company holding the note transfers the note and interest back to the customer's account as follows:

Dec.	21	Accounts Receivable—W. A. Bunn Co.		6,060	
		Notes Receivable—W. A. Bunn Co.			6,000
		Interest Revenue			60

---

[3] The accounting for notes payable is described and illustrated in Chapter 14.

The company has earned the interest of $60, even though the note is dishonored. If the account receivable is uncollectible, the company will write off $6,060 against Allowance for Doubtful Accounts.

A company receiving a note should record an adjusting entry for any accrued interest at the end of the period. For example, assume that Crawford Company issues a $4,000, 90-day, 12% note dated December 1, 2012, to settle its account receivable. If the accounting period ends on December 31, the company receiving the note would record the following entries:

2012 Dec.	1	Notes Receivable—Crawford Company		4,000	
		Accounts Receivable—Crawford Company			4,000
	31	Interest Receivable		40	
		Interest Revenue			40
		Accrued interest ($4,000 × 12% × 30/360).			
2013 Mar.	1	Cash		4,120	
		Notes Receivable—Crawford Company			4,000
		Interest Receivable			40
		Interest Revenue			80
		Total interest of $120 ($4,000 × 12% × 90/360).			

The interest revenue account is closed at the end of each accounting period. The amount of interest revenue is normally reported in the Other Income section of the income statement.

Example Exercise 9-5 Note Receivable

OBJ. 6

Same Day Surgery Center received a 120-day, 6% note for $40,000, dated March 14 from a patient on account.

a. Determine the due date of the note.
b. Determine the maturity value of the note.
c. Journalize the entry to record the receipt of the payment of the note at maturity.

Follow My Example 9-5

a. The due date of the note is July 12, determined as follows:

March	17 days (31 – 14)
April	30 days
May	31 days
June	30 days
July	12 days
Total	120 days

b. $40,800 [$40,000 + ($40,000 × 6% × 120/360)]

c.

July 12	Cash	40,800	
	Notes Receivable		40,000
	Interest Revenue		800

Practice Exercises: **PE 9-5A, PE 9-5B**

OBJ. 7

Describe the reporting of receivables on the balance sheet.

Reporting Receivables on the Balance Sheet

All receivables that are expected to be realized in cash within a year are reported in the Current assets section of the balance sheet. Current assets are normally reported in the order of their liquidity, beginning with cash and cash equivalents.

The balance sheet presentation for receivables for Mornin' Joe is shown below.

Mornin' Joe
Balance Sheet
December 31, 2012

Assets		
Current assets:		
Cash and cash equivalents		$235,000
Trading investments (at cost)	$420,000	
Plus valuation allowance for trading investments	45,000	465,000
Accounts receivable	$305,000	
Less allowance for doubtful accounts	12,300	292,700

In Mornin' Joe's financial statements, the allowance for doubtful accounts is subtracted from accounts receivable. Some companies report receivables at their net realizable value with a note showing the amount of the allowance.

Other disclosures related to receivables are reported either on the face of the financial statements or in the financial statement notes. Such disclosures include the market (fair) value of the receivables. In addition, if unusual credit risks exist within the receivables, the nature of the risks are disclosed. For example, if the majority of the receivables are due from one customer or are due from customers located in one area of the country or one industry, these facts are disclosed.[4]

Financial Analysis and Interpretation: Accounts Receivable Turnover and Number of Days' Sales in Receivables

F·A·I

OBJ. 8 Describe and illustrate the use of accounts receivable turnover and number of days' sales in receivables to evaluate a company's efficiency in collecting its receivables.

Two financial measures that are especially useful in evaluating efficiency in collecting receivables are (1) the accounts receivable turnover and (2) the number of days' sales in receivables.

The **accounts receivable turnover** measures how frequently during the year the accounts receivable are being converted to cash. For example, with credit terms of n/30, the accounts receivable should turn over about 12 times per year.

The accounts receivable turnover is computed as follows:[5]

$$\text{Accounts Receivable Turnover} = \frac{\text{Net Sales}}{\text{Average Accounts Receivable}}$$

The average accounts receivable can be determined by using monthly data or by simply adding the beginning and ending accounts receivable balances and dividing by two. For example, using the following financial data (in millions) for FedEx, the 2009 and 2008 accounts receivable turnover is computed as 8.1 as shown below.

	2009	2008
Net sales	$35,497	$37,953
Accounts receivable:		
Beginning of year	4,903	4,478
End of year	3,902	4,903
Average accounts receivable:		
($3,902 + $4,903)/2	4,403	
($4,903 + $4,478)/2		4,691
Accounts receivable turnover:		
$35,497/$4,403	8.1	
$37,953/$4,691		8.1

---

[4] *FASB Accounting Standards Codification*, Section 210-10-50.

[5] If known, credit sales can be used in the numerator. However, because credit sales are not normally disclosed to external users, most analysts use net sales in the numerator.

The **number of days' sales in receivables** is an estimate of the length of time the accounts receivable have been outstanding. With credit terms of n/30, the number of days' sales in receivables should be about 30 days. It is computed as follows:

$$\text{Number of Days' Sales in Receivables} = \frac{\text{Average Accounts Receivable}}{\text{Average Daily Sales}}$$

Average daily sales are determined by dividing net sales by 365 days. For example, using the preceding data for FedEx, the number of days' sales in receivables is 45.3 and 45.1 for 2009 and 2008, as shown below.

	2009	2008
Average daily sales:		
$35,497/365	97.3	
$37,953/365		104.0
Number of days' sales in receivables:		
$4,403/97.3	45.3	
$4,691/104.0		45.1

Example Exercise 9-6 Accounts Receivable Turnover and Number of Days' Sales in Receivables

8

Financial statement data for years ending December 31 for Osterman Company are as follows:

	2012	2011
Net sales	$4,284,000	$3,040,000
Accounts receivable:		
Beginning of year	550,000	400,000
End of year	640,000	550,000

a. Determine accounts receivable turnover for 2012 and 2011.

b. Determine the number of days' sales in receivables for 2012 and 2011.

c. Does the change in accounts receivable turnover and the number of days' sales in receivable from 2011 to 2012 indicate a favorable or an unfavorable trend?

Follow My Example 9-6

a. Accounts receivable turnover:

	2012	2011
Average accounts receivable:		
($550,000 + $640,000)/2	$595,000	
($400,000 + $550,000)/2		$475,000
Accounts receivable turnover:		
$4,284,000/$595,000	7.2	
$3,040,000/$475,000		6.4

b. Number of days' sales in receivables:

	2012	2011
Average daily sales:		
$4,284,000/365 days	$11,737	
$3,040,000/365 days		$8,329
Number of days' sales in receivables:		
$595,000/$11,737	50.7 days	
$475,000/$8,329		57.0 days

c. The increase in the accounts receivable turnover from 6.4 to 7.2 and the decrease in the number of days' sales in receivables from 57.0 days to 50.7 days indicate favorable trends in the efficiency of collecting accounts receivable.

Practice Exercises: **PE 9-6A, PE 9-6B**

The number of days' sales in receivables confirms that FedEx's efficiency in collecting accounts receivable has remained the same during 2009 and 2008. Generally, the efficiency in collecting accounts receivable has improved when the accounts receivable turnover increases or the number of days' sales in receivables decreases.

BusinessConnection

DELTA AIR LINES

Delta Air Lines is a major air carrier that services cities throughout the United States and the world. In its operations, Delta generates accounts receivable as reported in the following note to its financial statements:

Our accounts receivable are generated largely from the sale of passenger airline tickets and cargo transportation services. The majority of these sales are processed through major credit card companies, resulting in accounts receivable...

We also have receivables from the sale of mileage credits under our SkyMiles and WorldPerks Programs to participating airlines and nonairline businesses such as credit card companies, hotels, and car rental agencies. We believe the credit risk associated with these receivables is minimal and that the allowance for uncollectible accounts that we have provided is appropriate.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In its December 31, 2008, balance sheet, Delta reported the following accounts receivable (in millions):

	Dec. 31, 2009	Dec. 31, 2008
Current Assets:		
. . .		
Accounts receivable, net of an allowance for uncollectible accounts of $47 at December 31, 2009 and $42 at December 31, 2008	$1,353	$1,513

At a Glance 9

OBJ. 1 Describe the common classes of receivables.

Key Points *Receivables* includes all money claims against other entities. Receivables are normally classified as accounts receivable, notes receivable, or other receivables.

Learning Outcomes	Example Exercises	Practice Exercises
• Define the term *receivables*. • List some common classifications of receivables.		

OBJ. 2 Describe the accounting for uncollectible receivables.

Key Points The operating expense recorded from uncollectible receivables is called *bad debt expense*. The two methods of accounting for uncollectible receivables are the direct write-off method and the allowance method.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe how a company may shift the risk of uncollectible receivables to other companies. • List factors that indicate an account receivable is uncollectible • Describe two methods of accounting for uncollectible accounts receivable.		

OBJ. 3 Describe the direct write-off method of accounting for uncollectible receivables.

Key Points Under the direct write-off method, the entry to write off an account debits Bad Debt Expense and credits Accounts Receivable. Neither an allowance account nor an adjusting entry is needed at the end of the period.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare journal entries to write off an account using the direct write-off method.	EE9-1	PE9-1A, 9-1B
• Prepare journal entries for the reinstatement and collection of an account previously written off.	EE9-1	PE9-1A, 9-1B

OBJ. 4 Describe the allowance method of accounting for uncollectible receivables.

Key Points Under the allowance method, an adjusting entry is made for uncollectible accounts. When an account is determined to be uncollectible, it is written off against the allowance account. The allowance account normally has a credit balance after the adjusting entry has been posted and is a contra asset account.

The estimate of uncollectibles may be based on a percent of sales or an analysis of receivables. Exhibit 2 compares and contrasts these two methods..

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare journal entries to write off an account using the allowance method.	EE9-2	PE9-2A, 9-2B
• Prepare journal entries for the reinstatement and collection of an account previously written off.	EE9-2	PE9-2A, 9-2B
• Determine the adjustment, bad debt expense, and net realizable value of accounts receivable using the percent of sales method.	EE9-3	PE9-3A, 9-3B
• Determine the adjustment, bad debt expense, and net realizable value of accounts receivable using the analysis of receivables method.	EE9-4	PE9-4A, 9-4B

OBJ. 5 Compare the direct write-off and allowance methods of accounting for uncollectible accounts.

Key Points Exhibit 3 illustrates the differences between the direct write-off and allowance methods of accounting for uncollectible accounts.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the differences in accounting for uncollectible accounts under the direct write-off and allowance methods.		
• Record journal entries using the direct write-off and allowance methods.		

OBJ. 6 Describe the accounting for notes receivable.

Key Points A note received to settle an account receivable is recorded as a debit to Notes Receivable and a credit to Accounts Receivable. When a note is paid at maturity, Cash is debited, Notes Receivable is credited, and Interest Revenue is credited. If the maker of a note fails to pay, the dishonored note is recorded by debiting an accounts receivable account for the amount due from the maker of the note.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the characteristics of a note receivable.		
• Determine the due date and maturity value of a note receivable.	EE9-5	PE9-5A, 9-5B
• Prepare journal entries for the receipt of the payment of a note receivable.	EE9-5	PE9-5A, 9-5B
• Prepare a journal entry for the dishonored note receivable.		

OBJ. 7 Describe the reporting of receivables on the balance sheet.

Key Points All receivables that are expected to be realized in cash within a year are reported in the Current Assets section of the balance sheet. In addition to the allowance for doubtful accounts, additional receivable disclosures include the market (fair) value and unusual credit risks.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe how receivables are reported in the Current Assets section of the balance sheet.		
• Describe disclosures related to receivables that should be reported in the financial statements.		

OBJ. 8 Describe and illustrate the use of accounts receivable turnover and number of days' sales in receivables to evaluate a company's efficiency in collecting its receivables.

Key Points Two financial measures that are especially useful in evaluating efficiency in collecting receivables are (1) the accounts receivable turnover and (2) the number of days' sales in receivables. Generally, the efficiency in collecting accounts receivable has improved when the accounts receivable turnover increases or there is a decrease in the number of days' sales in receivables.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe two measures of the efficiency of managing receivables.		
• Compute and interpret the accounts receivable turnover and number of days' sales in receivables.	EE9-6	PE9-6A, 9-6B

Key Terms

accounts receivable (400)
accounts receivable turnover (415)
aging the receivables (407)
Allowance for Doubtful Accounts (403)
allowance method (401)
bad debt expense (401)
direct write-off method (401)
dishonored note receivable (413)
maturity value (412)
net realizable value (403)
notes receivable (400)
number of days' sales in receivables (416)
receivables (400)

Illustrative Problem

Ditzler Company, a construction supply company, uses the allowance method of accounting for uncollectible accounts receivable. Selected transactions completed by Ditzler Company are as follows:

Feb. 1. Sold merchandise on account to Ames Co., $8,000. The cost of the merchandise sold was $4,500.
Mar. 15. Accepted a 60-day, 12% note for $8,000 from Ames Co. on account.
Apr. 9. Wrote off a $2,500 account from Dorset Co. as uncollectible.
21. Loaned $7,500 cash to Jill Klein, receiving a 90-day, 14% note.
May 14. Received the interest due from Ames Co. and a new 90-day, 14% note as a renewal of the loan. (Record both the debit and the credit to the notes receivable account.)
June 13. Reinstated the account of Dorset Co., written off on April 9, and received $2,500 in full payment.
July 20. Jill Klein dishonored her note.
Aug. 12. Received from Ames Co. the amount due on its note of May 14.
19. Received from Jill Klein the amount owed on the dishonored note, plus interest for 30 days at 15%, computed on the maturity value of the note.
Dec. 16. Accepted a 60-day, 12% note for $12,000 from Global Company on account.
31. It is estimated that 3% of the credit sales of $1,375,000 for the year ended December 31 will be uncollectible.

Instructions

1. Journalize the transactions.
2. Journalize the adjusting entry to record the accrued interest on December 31 on the Global Company note.

Solution

1.

Feb.	1	Accounts Receivable—Ames Co.		8,000.00	
		Sales			8,000.00
	1	Cost of Merchandise Sold		4,500.00	
		Merchandise Inventory			4,500.00
Mar.	15	Notes Receivable—Ames Co.		8,000.00	
		Accounts Receivable—Ames Co.			8,000.00
Apr.	9	Allowance for Doubtful Accounts		2,500.00	
		Accounts Receivable—Dorset Co.			2,500.00
	21	Notes Receivable—Jill Klein		7,500.00	
		Cash			7,500.00
May	14	Notes Receivable—Ames Co.		8,000.00	
		Cash		160.00	
		Notes Receivable—Ames Co.			8,000.00
		Interest Revenue			160.00
June	13	Accounts Receivable—Dorset Co.		2,500.00	
		Allowance for Doubtful Accounts			2,500.00
	13	Cash		2,500.00	
		Accounts Receivable—Dorset Co.			2,500.00
July	20	Accounts Receivable—Jill Klein		7,762.50	
		Notes Receivable—Jill Klein			7,500.00
		Interest Revenue			262.50
Aug.	12	Cash		8,280.00	
		Notes Receivable—Ames Co.			8,000.00
		Interest Revenue			280.00
	19	Cash		7,859.53	
		Accounts Receivable—Jill Klein			7,762.50
		Interest Revenue			97.03
		($7,762.50 × 15% × 30/360).			
Dec.	16	Notes Receivable—Global Company		12,000.00	
		Accounts Receivable—Global Company			12,000.00
	31	Bad Debt Expense		41,250.00	
		Allowance for Doubtful Accounts			41,250.00
		Uncollectible accounts estimate			
		($1,375,000 × 3%).			

2.

Dec.	31	Interest Receivable		60.00	
		Interest Revenue			60.00
		Accrued interest			
		($12,000 × 12% × 15/360).			

Discussion Questions

1. What are the three classifications of receivables?
2. Elite Hardware is a small hardware store in the rural township of Rexburg that rarely extends credit to its customers in the form of an account receivable. The few customers that are allowed to carry accounts receivable are long-time residents of Rexburg and have a history of doing business at Elite Hardware. What method of accounting for uncollectible receivables should Elite Hardware use? Why?
3. What kind of an account (asset, liability, etc.) is Allowance for Doubtful Accounts, and is its normal balance a debit or a credit?
4. After the accounts are adjusted and closed at the end of the fiscal year, Accounts Receivable has a balance of $471,200 and Allowance for Doubtful Accounts has a balance of $27,500. Describe how the accounts receivable and the allowance for doubtful accounts are reported on the balance sheet.
5. A firm has consistently adjusted its allowance account at the end of the fiscal year by adding a fixed percent of the period's net sales on account. After seven years, the balance in Allowance for Doubtful Accounts has become very large in relationship to the balance in Accounts Receivable. Give two possible explanations.
6. Which of the two methods of estimating uncollectibles provides for the most accurate estimate of the current net realizable value of the receivables?
7. Calypso Company issued a note receivable to Kearny Company. (a) Who is the payee? (b) What is the title of the account used by Kearny Company in recording the note?
8. If a note provides for payment of principal of $150,000 and interest at the rate of 4%, will the interest amount to $6,000? Explain.
9. The maker of a $60,000, 5%, 90-day note receivable failed to pay the note on the due date of April 30. What accounts should be debited and credited by the payee to record the dishonored note receivable?
10. The note receivable dishonored in Discussion Question 9 is paid on May 30 by the maker, plus interest for 30 days, 8%. What entry should be made to record the receipt of the payment?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 3 **EE 9-1** *p. 402*

PE 9-1A Direct write-off method

Journalize the following transactions using the direct write-off method of accounting for uncollectible receivables:

Jan. 17. Received $250 from Ian Kearns and wrote off the remainder owed of $750 as uncollectible.

Apr. 6. Reinstated the account of Ian Kearns and received $750 cash in full payment.

OBJ. 3 **EE 9-1** *p. 402*

PE 9-1B Direct write-off method

Journalize the following transactions using the direct write-off method of accounting for uncollectible receivables:

July 7. Received $500 from Betty Williams and wrote off the remainder owed of $2,000 as uncollectible.

Nov. 13. Reinstated the account of Betty Williams and received $2,000 cash in full payment.

OBJ. 4 **EE 9-2** *p. 405*

PE 9-2A Allowance method

Journalize the following transactions using the allowance method of accounting for uncollectible receivables:

Jan. 17. Received $250 from Ian Kearns and wrote off the remainder owed of $750 as uncollectible.

Apr. 6. Reinstated the account of Ian Kearns and received $750 cash in full payment.

OBJ. 4 **EE 9-2** *p. 405*

PE 9-2B Allowance method

Journalize the following transactions using the allowance method of accounting for uncollectible receivables:

July 7. Received $500 from Betty Williams and wrote off the remainder owed of $2,000 as uncollectible.

Nov. 13. Reinstated the account of Betty Williams and received $2,000 cash in full payment.

OBJ. 4 **EE 9-3** *p. 406*

PE 9-3A Percent of sales method

At the end of the current year, Accounts Receivable has a balance of $325,000; Allowance for Doubtful Accounts has a credit balance of $3,900; and net sales for the year total $4,500,000. Bad debt expense is estimated at ½ of 1% of net sales.

Determine (a) the amount of the adjusting entry for uncollectible accounts; (b) the adjusted balances of Accounts Receivable, Allowance for Doubtful Accounts, and Bad Debt Expense; and (c) the net realizable value of accounts receivable.

OBJ. 4 **EE 9-3** *p. 406*

PE 9-3B Percent of sales method

At the end of the current year, Accounts Receivable has a balance of $2,500,000; Allowance for Doubtful Accounts has a debit balance of $9,000; and net sales for the year total $32,000,000. Bad debt expense is estimated at ¼ of 1% of net sales.

Determine (a) the amount of the adjusting entry for uncollectible accounts; (b) the adjusted balances of Accounts Receivable, Allowance for Doubtful Accounts, and Bad Debt Expense; and (c) the net realizable value of accounts receivable.

Learning Objectives *Example Exercises*

OBJ. 4 **EE 9-4** *p. 409*

PE 9-4A Analysis of receivables method

At the end of the current year, Accounts Receivable has a balance of $325,000; Allowance for Doubtful Accounts has a credit balance of $3,900; and net sales for the year total $4,500,000. Using the aging method, the balance of Allowance for Doubtful Accounts is estimated as $25,000.

Determine (a) the amount of the adjusting entry for uncollectible accounts; (b) the adjusted balances of Accounts Receivable, Allowance for Doubtful Accounts, and Bad Debt Expense; and (c) the net realizable value of accounts receivable.

OBJ. 4 **EE 9-4** *p. 409*

PE 9-4B Analysis of receivables method

At the end of the current year, Accounts Receivable has a balance of $2,500,000; Allowance for Doubtful Accounts has a debit balance of $9,000; and net sales for the year total $32,000,000. Using the aging method, the balance of Allowance for Doubtful Accounts is estimated as $76,000.

Determine (a) the amount of the adjusting entry for uncollectible accounts; (b) the adjusted balances of Accounts Receivable, Allowance for Doubtful Accounts, and Bad Debt Expense; and (c) the net realizable value of accounts receivable.

OBJ. 6 **EE 9-5** *p. 414*

PE 9-5A Note receivable

Vista Supply Company received a 30-day, 4% note for $90,000, dated September 8 from a customer on account.

a. Determine the due date of the note.

b. Determine the maturity value of the note.

c. Journalize the entry to record the receipt of the payment of the note at maturity.

OBJ. 6 **EE 9-5** *p. 414*

PE 9-5B Note receivable

Gorilla Supply Company received a 120-day, 5% note for $150,000, dated March 27 from a customer on account.

a. Determine the due date of the note.

b. Determine the maturity value of the note.

c. Journalize the entry to record the receipt of the payment of the note at maturity.

OBJ. 8 **EE 9-6** *p. 416*

FAI

PE 9-6A Accounts receivable turnover and number of days' sales in receivables

Financial statement data for years ending December 31 for Blum Company are shown below.

	2012	2011
Net sales	$2,430,000	$1,920,000
Accounts receivable:		
Beginning of year	180,000	120,000
End of year	225,000	180,000

a. Determine the accounts receivable turnover for 2012 and 2011.

b. Determine the number of days' sales in receivables for 2012 and 2011. Round to one decimal place.

c. Does the change in accounts receivable turnover and the number of days' sales in receivables from 2011 to 2012 indicate a favorable or an unfavorable trend?

OBJ. 8 **EE 9-6** *p. 416*

FAI

PE 9-6B Accounts receivable turnover and number of days' sales in receivables

Financial statement data for years ending December 31 for Sherick Company are shown below.

	2012	2011
Net sales	$4,514,000	$4,200,000
Accounts receivable:		
Beginning of year	280,000	320,000
End of year	330,000	280,000

a. Determine the accounts receivable turnover for 2012 and 2011.

b. Determine the number of days' sales in receivables for 2012 and 2011. Round to one decimal place.

c. Does the change in accounts receivable turnover and the number of days' sales in receivables from 2011 to 2012 indicate a favorable or an unfavorable trend?

Exercises

OBJ. 1

EX 9-1 Classifications of receivables

Boeing is one of the world's major aerospace firms, with operations involving commercial aircraft, military aircraft, missiles, satellite systems, and information and battle management systems. As of December 31, 2009, Boeing had $3,090 million of receivables involving U.S. government contracts and $1,206 million of receivables involving commercial aircraft customers, such as Delta Air Lines and United Airlines.

Should Boeing report these receivables separately in the financial statements, or combine them into one overall accounts receivable amount? Explain.

OBJ. 2

✓ a. 20.9%

EX 9-2 Nature of uncollectible accounts

The MGM Mirage owns and operates casinos including the MGM Grand and the Bellagio in Las Vegas, Nevada. As of December 31, 2009, The MGM Mirage reported accounts and notes receivable of $465,580,000 and allowance for doubtful accounts of $97,106,000. Johnson & Johnson manufactures and sells a wide range of health care products including Band-Aids and Tylenol. As of December 31, 2009, Johnson & Johnson reported accounts receivable of $9,979,000,000 and allowance for doubtful accounts of $333,000,000.

a. Compute the percentage of the allowance for doubtful accounts to the accounts and notes receivable as of December 31, 2009, for The MGM Mirage. Round to one decimal place.

b. Compute the percentage of the allowance for doubtful accounts to the accounts receivable as of December 31, 2009, for Johnson & Johnson. Round to one decimal place.

c. Discuss possible reasons for the difference in the two ratios computed in (a) and (b).

OBJ. 3

EX 9-3 Entries for uncollectible accounts, using direct write-off method

Journalize the following transactions in the accounts of Cecena Medical Co., a medical equipment company that uses the direct write-off method of accounting for uncollectible receivables:

Feb. 13. Sold merchandise on account to Dr. Ben Katz, $120,000. The cost of the merchandise sold was $72,000.

May 4. Received $90,000 from Dr. Ben Katz and wrote off the remainder owed on the sale of February 13 as uncollectible.

Nov. 19. Reinstated the account of Dr. Ben Katz that had been written off on May 4 and received $30,000 cash in full payment.

OBJ. 4

EX 9-4 Entries for uncollectible receivables, using allowance method

Journalize the following transactions in the accounts of Metromark Company, a restaurant supply company that uses the allowance method of accounting for uncollectible receivables:

Feb. 11. Sold merchandise on account to Dakota Co., $29,000. The cost of the merchandise sold was $17,400.

Apr. 15. Received $7,500 from Dakota Co. and wrote off the remainder owed on the sale of February 11 as uncollectible.

Sept. 3. Reinstated the account of Dakota Co. that had been written off on April 15 and received $21,500 cash in full payment.

OBJ. 3, 4

EX 9-5 Entries to write off accounts receivable

Acropolis Company, a computer consulting firm, has decided to write off the $12,950 balance of an account owed by a customer, Aaron Guzman. Journalize the entry to record the write-off, assuming that (a) the direct write-off method is used and (b) the allowance method is used.

OBJ. 4

✓ a. $80,000

✓ b. $82,000

EX 9-6 Providing for doubtful accounts

At the end of the current year, the accounts receivable account has a debit balance of $1,275,000 and net sales for the year total $16,000,000. Determine the amount of the adjusting entry to provide for doubtful accounts under each of the following assumptions:

a. The allowance account before adjustment has a debit balance of $5,000. Bad debt expense is estimated at ½ of 1% of net sales.

b. The allowance account before adjustment has a debit balance of $5,000. An aging of the accounts in the customer ledger indicates estimated doubtful accounts of $77,000.

c. The allowance account before adjustment has a credit balance of $7,500. Bad debt expense is estimated at ¼ of 1% of net sales.

d. The allowance account before adjustment has a credit balance of $7,500. An aging of the accounts in the customer ledger indicates estimated doubtful accounts of $43,500.

OBJ. 4

✓ Alpha Auto, 77 days

EX 9-7 Number of days past due

Honest Abe's Auto Supply distributes new and used automobile parts to local dealers throughout the Northeast. Honest Abe's credit terms are n/30. As of the end of business on July 31, the following accounts receivable were past due:

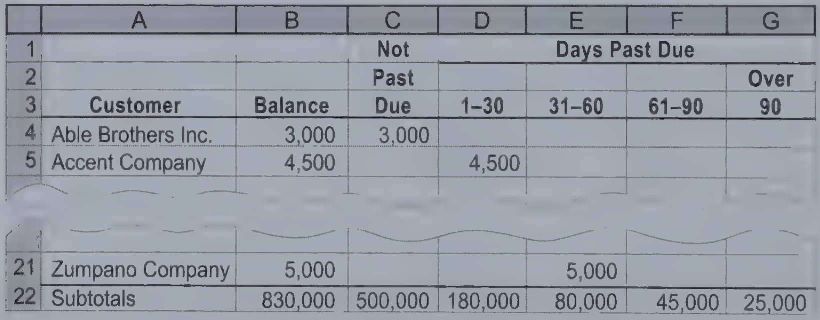
Account	Due Date	Amount
Alpha Auto	May 15	$ 9,000
Best Auto	July 8	3,000
Downtown Repair	March 18	7,500
Lucky's Auto Repair	June 1	5,000
Pit Stop Auto	June 3	750
Sally's	April 12	13,000
Trident Auto	May 31	1,500
Washburn Repair & Tow	March 2	1,500

Determine the number of days each account is past due.

OBJ. 4

EX 9-8 Aging of receivables schedule

The accounts receivable clerk for Quigley Industries prepared the following partially completed aging of receivables schedule as of the end of business on November 30:



	A	B	C	D	E	F	G
1			Not	Days Past Due			
2			Past				Over
3	Customer	Balance	Due	1–30	31–60	61–90	90
4	Able Brothers Inc.	3,000	3,000				
5	Accent Company	4,500		4,500			
21	Zumpano Company	5,000			5,000		
22	Subtotals	830,000	500,000	180,000	80,000	45,000	25,000

The following accounts were unintentionally omitted from the aging schedule and not included in the subtotals above:

Customer	Balance	Due Date
Beltran Industries	$12,000	July 10
Doodle Company	8,000	September 20
La Corp Inc.	17,000	October 17
VIP Sales Company	10,000	November 4
We-Go Company	23,000	December 21

a. Determine the number of days past due for each of the preceding accounts.

b. Complete the aging-of-receivables schedule by adding the omitted accounts to the bottom of the schedule and updating the totals.

OBJ. 4

✓ $68,130

EX 9-9 Estimating allowance for doubtful accounts

Quigley Industries has a past history of uncollectible accounts, as shown below. Estimate the allowance for doubtful accounts, based on the aging of receivables schedule you completed in Exercise 9-8.

Age Class	Percent Uncollectible
Not past due	1%
1–30 days past due	4
31–60 days past due	15
61–90 days past due	35
Over 90 days past due	60

OBJ. 4

EX 9-10 Adjustment for uncollectible accounts

Using data in Exercise 9-9, assume that the allowance for doubtful accounts for Quigley Industries has a credit balance of $14,280 before adjustment on November 30. Journalize the adjusting entry for uncollectible accounts as of November 30.

OBJ. 4

EX 9-11 Estimating doubtful accounts

Imperial Bikes Co. is a wholesaler of motorcycle supplies. An aging of the company's accounts receivable on December 31, 2012, and a historical analysis of the percentage of uncollectible accounts in each age category are as follows:

Age Interval	Balance	Percent Uncollectible
Not past due	$600,000	¼%
1–30 days past due	120,000	2
31–60 days past due	60,000	3
61–90 days past due	45,000	10
91–180 days past due	26,000	40
Over 180 days past due	24,000	75
	$875,000	

Estimate what the proper balance of the allowance for doubtful accounts should be as of December 31, 2012.

OBJ. 4

EX 9-12 Entry for uncollectible accounts

Using the data in Exercise 9-11, assume that the allowance for doubtful accounts for Imperial Bikes Co. had a debit balance of $1,400 as of December 31, 2012.

Journalize the adjusting entry for uncollectible accounts as of December 31, 2012.

OBJ. 5

✔ c. $14,900 higher

EX 9-13 Entries for bad debt expense under the direct write-off and allowance methods

The following selected transactions were taken from the records of Aprilla Company for the first year of its operations ending December 31, 2012:

Jan. 27. Wrote off account of C. Knoll, $6,000.

Feb. 17. Received $1,000 as partial payment on the $3,000 account of Joni Lester. Wrote off the remaining balance as uncollectible.

Mar. 3. Received $6,000 from C. Knoll, which had been written off on January 27. Reinstated the account and recorded the cash receipt.

Dec. 31. Wrote off the following accounts as uncollectible (record as one journal entry):

Jason Short	$4,500
Kim Snider	1,500
Sue Pascall	1,100
Tracy Lane	3,500
Randy Pape	500

31. If necessary, record the year-end adjusting entry for uncollectible accounts.

a. Journalize the transactions for 2012 under the direct write-off method.

b. Journalize the transactions for 2012 under the allowance method. Aprilla Company uses the percent of credit sales method of estimating uncollectible accounts expense. Based on past history and industry averages, 1¾% of credit sales are expected to be uncollectible. Aprilla Company recorded $1,600,000 of credit sales during 2012.

c. How much higher (lower) would Aprilla Company's net income have been under the direct write-off method than under the allowance method?

OBJ. 5
✔ c. $200 higher

EX 9-14 Entries for bad debt expense under the direct write-off and allowance methods

The following selected transactions were taken from the records of Silhouette Company for the year ending December 31, 2012:

Mar. 4. Wrote off account of Myron Rimando, $7,500.

May 19. Received $2,000 as partial payment on the $10,000 account of Shirley Mason. Wrote off the remaining balance as uncollectible.

Aug. 7. Received the $7,500 from Myron Rimando, which had been written off on March 4. Reinstated the account and recorded the cash receipt.

Dec. 31. Wrote off the following accounts as uncollectible (record as one journal entry):

Brandon Peele	$ 5,000
Clyde Stringer	9,000
Ned Berry	13,000
Mary Adams	2,000
Gina Bowers	4,500

Dec. 31. If necessary, record the year-end adjusting entry for uncollectible accounts.

a. Journalize the transactions for 2012 under the direct write-off method.

b. Journalize the transactions for 2012 under the allowance method, assuming that the allowance account had a beginning balance of $45,000 on January 1, 2012, and the company uses the analysis of receivables method. Silhouette Company prepared the following aging schedule for its accounts receivable:

Aging Class (Number of Days Past Due)	Receivables Balance on December 31	Estimated Percent of Uncollectible Accounts
0–30 days	$300,000	1%
31–60 days	80,000	4
61–90 days	20,000	15
91–120 days	10,000	40
More than 120 days	40,000	80
Total receivables	$450,000	

c. How much higher (lower) would Silhouette's 2012 net income have been under the direct write-off method than under the allowance method?

OBJ. 5

EX 9-15 Effect of doubtful accounts on net income

During its first year of operations, Filippi's Plumbing Supply Co. had net sales of $4,800,000, wrote off $65,000 of accounts as uncollectible using the direct write-off method, and reported net income of $375,000. Determine what the net income would have been if the allowance method had been used, and the company estimated that 1½% of net sales would be uncollectible.

OBJ. 5
✔ b. $19,500 credit balance

EX 9-16 Effect of doubtful accounts on net income

Using the data in Exercise 9-15, assume that during the second year of operations Filippi's Plumbing Supply Co. had net sales of $5,500,000, wrote off $70,000 of accounts as uncollectible using the direct write-off method, and reported net income of $450,000.

a. Determine what net income would have been in the second year if the allowance method (using 1½% of net sales) had been used in both the first and second years.

b. Determine what the balance of the allowance for doubtful accounts would have been at the end of the second year if the allowance method had been used in both the first and second years.

OBJ. 5
✔ c. $16,000 higher

EX 9-17 Entries for bad debt expense under the direct write-off and allowance methods

Spangler Company wrote off the following accounts receivable as uncollectible for the first year of its operations ending December 31, 2012:

Customer	Amount
Will Boyette	$10,000
Stan Frey	8,000
Tammy Imes	5,000
Shana Wagner	6,000
Total	$29,000

a. Journalize the write-offs for 2012 under the direct write-off method.

b. Journalize the write-offs for 2012 under the allowance method. Also, journalize the adjusting entry for uncollectible accounts. The company recorded $3,000,000 of credit sales during 2012. Based on past history and industry averages, 1½% of credit sales are expected to be uncollectible.

c. How much higher (lower) would Spangler Company's 2012 net income have been under the direct write-off method than under the allowance method?

OBJ. 5

EX 9-18 Entries for bad debt expense under the direct write-off and allowance methods

Magnetics International wrote off the following accounts receivable as uncollectible for the year ending December 31, 2012:

Customer	Amount
Trey Betts	$15,500
Cheryl Carson	9,000
Irene Harris	29,700
Renee Putman	3,100
Total	$57,300

The company prepared the following aging schedule for its accounts receivable on December 31, 2012:

Aging Class (Number of Days Past Due)	Receivables Balance on December 31	Estimated Percent of Uncollectible Accounts
0–30 days	$600,000	1%
31–60 days	150,000	2
61–90 days	75,000	18
91–120 days	50,000	30
More than 120 days	60,000	50
Total receivables	$935,000	

a. Journalize the write-offs for 2012 under the direct write-off method.

b. Journalize the write-offs and the year-end adjusting entry for 2012 under the allowance method, assuming that the allowance account had a beginning balance of $55,000 on January 1, 2012, and the company uses the analysis of receivables method.

c. How much higher (lower) would Magnetics International's 2012 net income have been under the allowance method than under the direct write-off method?

OBJ. 6

✔ a. Aug. 13, $600

EX 9-19 Determine due date and interest on notes

Determine the due date and the amount of interest due at maturity on the following notes:

	Date of Note	Face Amount	Interest Rate	Term of Note
a.	May 15	$40,000	6%	90 days
b.	March 20	15,000	4	60 days
c.	May 19	24,000	3	60 days
d.	October 1	10,500	8	60 days
e.	August 30	18,000	5	120 days

OBJ. 6

✔ b. $91,350

EX 9-20 Entries for notes receivable

Oregon Interior Decorators issued a 90-day, 6% note for $90,000, dated April 9, to Corvallis Furniture Company on account.

a. Determine the due date of the note.

b. Determine the maturity value of the note.

c. Journalize the entries to record the following: (1) receipt of the note by Corvallis Furniture and (2) receipt of payment of the note at maturity.

OBJ. 6

EX 9-21 Entries for notes receivable

The series of seven transactions recorded in the following T accounts were related to a sale to a customer on account and the receipt of the amount owed. Briefly describe each transaction.

CASH			
(7)	40,602		

NOTES RECEIVABLE			
(5)	40,000	(6)	40,000

ACCOUNTS RECEIVABLE			
(1)	50,000	(3)	10,000
(6)	40,400	(5)	40,000
		(7)	40,400

SALES RETURNS AND ALLOWANCES			
(3)	10,000		

MERCHANDISE INVENTORY			
(4)	6,000	(2)	30,000

COST OF MERCHANDISE SOLD			
(2)	30,000	(4)	6,000

SALES			
		(1)	50,000

INTEREST REVENUE			
		(6)	400
		(7)	202

OBJ. 6

EX 9-22 Entries for notes receivable, including year-end entries

The following selected transactions were completed by Zip-Up Co., a supplier of zippers for clothing:

2011

Dec. 10. Received from Point Loma Clothing & Bags Co., on account, a $36,000, 90-day, 4% note dated December 10.

31. Recorded an adjusting entry for accrued interest on the note of December 10.

31. Recorded the closing entry for interest revenue.

2012

Mar. 9. Received payment of note and interest from Point Loma Clothing & Bags Co.

Journalize the transactions.

OBJ. 6

EX 9-23 Entries for receipt and dishonor of note receivable

Journalize the following transactions of Frankenstein Productions:

May 3. Received a $150,000, 120-day, 6% note dated May 3 from Sunrider Co. on account.

Aug. 31. The note is dishonored by Sunrider Co.

Oct. 30. Received the amount due on the dishonored note plus interest for 60 days at 9% on the total amount charged to Sunrider Co. on August 31.

OBJ. 4, 6

EX 9-24 Entries for receipt and dishonor of notes receivable

Journalize the following transactions in the accounts of Jamba Co., which operates a riverboat casino:

Mar. 1. Received an $80,000, 60-day, 6% note dated March 1 from Tomekia Co. on account.

18. Received a $75,000, 60-day, 8% note dated March 18 from Mystic Co. on account.

Apr. 30. The note dated March 1 from Tomekia Co. is dishonored, and the customer's account is charged for the note, including interest.

May 17. The note dated March 18 from Mystic Co. is dishonored, and the customer's account is charged for the note, including interest.

July 29. Cash is received for the amount due on the dishonored note dated March 1 plus interest for 90 days at 8% on the total amount debited to Tomekia Co. on April 30.

Aug. 23. Wrote off against the allowance account the amount charged to Mystic Co. on May 17 for the dishonored note dated March 18.

OBJ. 7

EX 9-25 Receivables on the balance sheet

List any errors you can find in the following partial balance sheet:

Tulips Company
Balance Sheet
December 31, 2012

Assets		
Current assets:		
Cash		$138,000
Notes receivable	$400,000	
Less interest receivable	20,000	380,000
Accounts receivable	$795,000	
Plus allowance for doubtful accounts	14,500	809,500

OBJ. 8

✔ a. 2009: 8.6

EX 9-26 Accounts receivable turnover and days' sales in receivables

Polo Ralph Lauren Corporation designs, markets, and distributes a variety of apparel, home decor, accessory, and fragrance products. The company's products include such brands as Polo by Ralph Lauren, Ralph Lauren Purple Label, Ralph Lauren, Polo Jeans Co., and Chaps. Polo Ralph Lauren reported the following (in thousands):

	For the Period Ending	
	March 29, 2009	**March 29, 2008**
Net sales	$5,018,900	$4,880,100
Accounts receivable	576,700	585,000

Assume that accounts receivable (in millions) were $511,900 at the beginning of the 2008 fiscal year.

a. Compute the accounts receivable turnover for 2009 and 2008. Round to one decimal place.

b. Compute the days' sales in receivables for 2009 and 2008. Round to one decimal place.

c. What conclusions can be drawn from these analyses regarding Ralph Lauren's efficiency in collecting receivables?

OBJ. 8

✔a. 2009: 8.7

EX 9-27 Accounts receivable turnover and days' sales in receivables

H.J. Heinz Company was founded in 1869 at Sharpsburg, Pennsylvania, by Henry J. Heinz. The company manufactures and markets food products throughout the world, including ketchup, condiments and sauces, frozen food, pet food, soups, and tuna. For the fiscal years 2009 and 2008, H.J. Heinz reported the following (in thousands):

	Year Ending	
	April 29, 2009	April 30, 2008
Net sales	$10,148,082	$10,070,778
Accounts receivable	1,171,797	1,161,481

Assume that the accounts receivable (in thousands) were $996,852 at the beginning of fiscal year 2008.

a. Compute the accounts receivable turnover for 2009 and 2008. Round to one decimal place.

b. Compute the days' sales in receivables at the end of 2009 and 2008. Round to one decimal place.

c. What conclusions can be drawn from these analyses regarding Heinz's efficiency in collecting receivables?

OBJ. 8

EX 9-28 Accounts receivable turnover and days' sales in receivables

The Limited Brands Inc. sells women's clothing and personal health care products through specialty retail stores including Victoria's Secret and Bath & Body Works stores. The Limited Brands reported the following (in millions):

	For the Period Ending	
	Jan. 31, 2010	Jan. 31, 2009
Net sales	$8,632	$9,043
Accounts receivable	249	313

Assume that accounts receivable (in millions) were $355 at the beginning of fiscal year 2009.

a. Compute the accounts receivable turnover for 2010 and 2009. Round to one decimal place.

b. Compute the day's sales in receivables for 2010 and 2009. Round to one decimal place.

c. What conclusions can be drawn from these analyses regarding The Limited Brands' efficiency in collecting receivables?

OBJ. 8

EX 9-29 Accounts receivable turnover

Use the data in Exercises 9-27 and 9-28 to analyze the accounts receivable turnover ratios of H.J. Heinz Company and The Limited Brands Inc.

a. Compute the average accounts receivable turnover ratio for The Limited Brands Inc. and H.J. Heinz Company for the years shown in Exercises 9-27 and 9-28.

b. Does The Limited Brands or H.J. Heinz Company have the higher average accounts receivable turnover ratio?

c. Explain the logic underlying your answer in (b).

Problems Series A

OBJ. 4

✓ 3. $1,140,000

PR 9-1A Entries related to uncollectible accounts

The following transactions were completed by Axiom Management Company during the current fiscal year ended December 31:

Feb.	17.	Received 25% of the $30,000 balance owed by Gillespie Co., a bankrupt business, and wrote off the remainder as uncollectible.
Apr.	11.	Reinstated the account of Colleen Bertram, which had been written off in the preceding year as uncollectible. Journalized the receipt of $4,250 cash in full payment of Colleen's account.
July	6.	Wrote off the $9,000 balance owed by Covered Wagon Co., which has no assets.

Nov. 20. Reinstated the account of Dugan Co., which had been written off in the preceding year as uncollectible. Journalized the receipt of $5,900 cash in full payment of the account.

Dec. 31. Wrote off the following accounts as uncollectible (compound entry): Kipp Co., $3,000; Moore Co., $4,000; Butte Distributors, $8,000; Parker Towers, $6,700.

31. Based on an analysis of the $1,200,000 of accounts receivable, it was estimated that $60,000 will be uncollectible. Journalized the adjusting entry.

Instructions

1. Record the January 1 credit balance of $40,000 in a T account for Allowance for Doubtful Accounts.
2. Journalize the transactions. Post each entry that affects the following selected T accounts and determine the new balances:

   Allowance for Doubtful Accounts

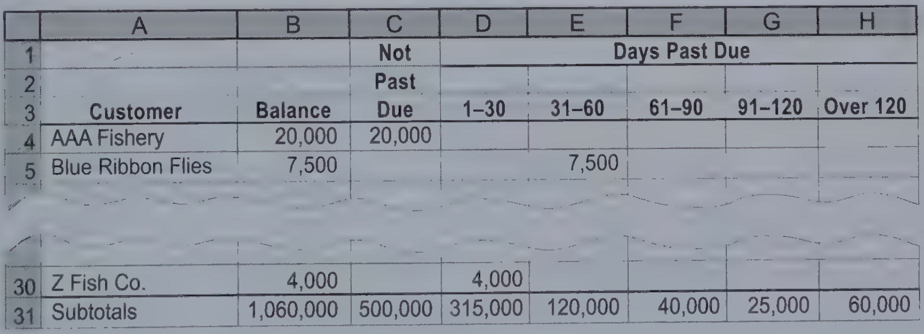
   Bad Debt Expense
3. Determine the expected net realizable value of the accounts receivable as of December 31.
4. Assuming that instead of basing the provision for uncollectible accounts on an analysis of receivables, the adjusting entry on December 31 had been based on an estimated expense of ¾ of 1% of the net sales of $7,500,000 for the year, determine the following:
   a. Bad debt expense for the year.
   b. Balance in the allowance account after the adjustment of December 31.
   c. Expected net realizable value of the accounts receivable as of December 31.

OBJ. 4

✓ 3. $111,095

PR 9-2A Aging of receivables; estimating allowance for doubtful accounts

Angler's Dream Company supplies flies and fishing gear to sporting goods stores and outfitters throughout the western United States. The accounts receivable clerk for Angler's Dream prepared the following partially completed aging of receivables schedule as of the end of business on December 31, 2011:



	A	B	C	D	E	F	G	H
1			Not	Days Past Due				
2			Past					
3	Customer	Balance	Due	1–30	31–60	61–90	91–120	Over 120
4	AAA Fishery	20,000	20,000					
5	Blue Ribbon Flies	7,500			7,500			
30	Z Fish Co.	4,000		4,000				
31	Subtotals	1,060,000	500,000	315,000	120,000	40,000	25,000	60,000

The following accounts were unintentionally omitted from the aging schedule:

Customer	Due Date	Balance
Antelope Sports & Flies	June 21, 2011	$ 3,000
Big Hole Flies	Aug. 30, 2011	6,500
Charlie's Fish Co.	Sept. 8, 2011	12,000
Deschutes Sports	Oct. 20, 2011	4,000
Green River Sports	Nov. 7, 2011	3,500
Smith River Co.	Nov. 28, 2011	1,500
Wild Trout Company	Dec. 5, 2011	5,000
Wolfe Sports	Jan. 7, 2012	4,500

Angler's Dream has a past history of uncollectible accounts by age category, as follows:

Age Class	Percent Uncollectible
Not past due	1%
1–30 days past due	4
31–60 days past due	8
61–90 days past due	25
91–120 days past due	45
Over 120 days past due	80

Instructions

1. Determine the number of days past due for each of the preceding accounts.
2. Complete the aging of receivables schedule by adding the omitted accounts to the bottom of the schedule and updating the totals.
3. Estimate the allowance for doubtful accounts, based on the aging of receivables schedule.
4. Assume that the allowance for doubtful accounts for Angler's Dream Company has a debit balance of $1,405 before adjustment on December 31, 2011. Journalize the adjusting entry for uncollectible accounts.
5. Assume that the adjusting entry in (4) was inadvertently omitted, how would the omission affect the balance sheet and income statement?

OBJ. 3, 4, 5

✔ 1. Year 4: Balance of allowance account, end of year, $14,950

PR 9-3A Compare two methods of accounting for uncollectible receivables

Tel-Com Company, a telephone service and supply company, has just completed its fourth year of operations. The direct write-off method of recording bad debt expense has been used during the entire period. Because of substantial increases in sales volume and the amount of uncollectible accounts, the company is considering changing to the allowance method. Information is requested as to the effect that an annual provision of ¾% of sales would have had on the amount of bad debt expense reported for each of the past four years. It is also considered desirable to know what the balance of Allowance for Doubtful Accounts would have been at the end of each year. The following data have been obtained from the accounts:

			Year of Origin of Accounts Receivable Written Off as Uncollectible			
Year	**Sales**	**Uncollectible Accounts Written off**	**1st**	**2nd**	**3rd**	**4th**
1st	$ 700,000	$2,000	$2,000			
2nd	900,000	3,400	1,800	$1,600		
3rd	1,200,000	6,450	1,000	3,700	$1,750	
4th	2,000,000	9,200		1,260	3,700	$4,240

Instructions

1. Assemble the desired data, using the following column headings:

	Bad Debt Expense			
Year	**Expense Actually Reported**	**Expense Based on Estimate**	**Increase (Decrease) in Amount of Expense**	**Balance of Allowance Account, End of Year**

2. Experience during the first four years of operations indicated that the receivables were either collected within two years or had to be written off as uncollectible. Does the estimate of ¾% of sales appear to be reasonably close to the actual experience with uncollectible accounts originating during the first two years? Explain.

OBJ. 6

✓ 1. Note 2: Due date, July 24; Interest due at maturity, $90

PR 9-4A Details of notes receivable and related entries

Old Town Co. wholesales bathroom fixtures. During the current fiscal year, Old Town Co. received the following notes:

	Date	Face Amount	Term	Interest Rate
1.	Apr. 10	$45,000	60 days	4%
2.	June 24	18,000	30 days	6
3.	July 1	36,000	120 days	6
4.	Oct. 31	36,000	60 days	9
5.	Nov. 15	54,000	60 days	6
6.	Dec. 27	40,500	30 days	4

Instructions

1. Determine for each note (a) the due date and (b) the amount of interest due at maturity, identifying each note by number.
2. Journalize the entry to record the dishonor of Note (3) on its due date.
3. Journalize the adjusting entry to record the accrued interest on Notes (5) and (6) on December 31.
4. Journalize the entries to record the receipt of the amounts due on Notes (5) and (6) in January.

OBJ. 6

PR 9-5A Notes receivable entries

The following data relate to notes receivable and interest for Viking Co., a cable manufacturer and supplier. (All notes are dated as of the day they are received.)

June 3. Received a $24,000, 4%, 60-day note on account.
July 26. Received a $27,000, 5%, 120-day note on account.
Aug. 2. Received $24,160 on note of June 3.
Sept. 4. Received a $60,000, 3%, 60-day note on account.
Nov. 3. Received $60,300 on note of September 4.
5. Received a $36,000, 7%, 30-day note on account.
23. Received $27,450 on note of July 26.
30. Received an $18,000, 5%, 30-day note on account.
Dec. 5. Received $36,210 on note of November 5.
30. Received $18,075 on note of November 30.

Instructions

Journalize entries to record the transactions.

OBJ. 6

PR 9-6A Sales and notes receivable transactions

The following were selected from among the transactions completed by Sorento Co. during the current year. Sorento Co. sells and installs home and business security systems.

Jan. 5. Loaned $17,500 cash to Marc Jager, receiving a 90-day, 8% note.
Feb. 4. Sold merchandise on account to Tedra & Co., $19,000. The cost of the merchandise sold was $11,000.
13. Sold merchandise on account to Centennial Co., $30,000. The cost of merchandise sold was $17,600.
Mar. 6. Accepted a 60-day, 6% note for $19,000 from Tedra & Co. on account.
14. Accepted a 60-day, 9% note for $30,000 from Centennial Co. on account.

Apr. 5. Received the interest due from Marc Jager and a new 120-day, 9% note as a renewal of the loan of January 5. (Record both the debit and the credit to the notes receivable account.)

May 5. Received from Tedra & Co. the amount due on the note of March 6.

13. Centennial Co. dishonored its note dated March 14.

July 12. Received from Centennial Co. the amount owed on the dishonored note, plus interest for 60 days at 12% computed on the maturity value of the note.

Aug. 3. Received from Marc Jager the amount due on his note of April 5.

Sept. 7. Sold merchandise on account to Lock-It Co., $9,000. The cost of the merchandise sold was $5,000.

17. Received from Lock-It Co. the amount of the invoice of September 7, less 1% discount.

Instructions

Journalize the transactions.

Problems Series B

OBJ. 4

✓ 3. $1,830,000

PR 9-1B Entries related to uncollectible accounts

The following transactions were completed by The Spencer Gallery during the current fiscal year ended December 31:

Mar. 15. Reinstated the account of Brad Atwell, which had been written off in the preceding year as uncollectible. Journalized the receipt of $3,750 cash in full payment of Brad's account.

May 20. Wrote off the $15,000 balance owed by Glory Rigging Co., which is bankrupt.

Aug. 13. Received 40% of the $18,000 balance owed by Coastal Co., a bankrupt business, and wrote off the remainder as uncollectible.

Sept. 2. Reinstated the account of Lorie Kidd, which had been written off two years earlier as uncollectible. Recorded the receipt of $6,500 cash in full payment.

Dec. 31. Wrote off the following accounts as uncollectible (compound entry): Kimbro Co., $9,000; McHale Co., $2,500; Summit Furniture, $7,500; Wes Riggs, $2,000.

31. Based on an analysis of the $1,880,000 of accounts receivable, it was estimated that $50,000 will be uncollectible. Journalized the adjusting entry.

Instructions

1. Record the January 1 credit balance of $38,500 in a T account for Allowance for Doubtful Accounts.
2. Journalize the transactions. Post each entry that affects the following T accounts and determine the new balances:

   Allowance for Doubtful Accounts
   Bad Debt Expense

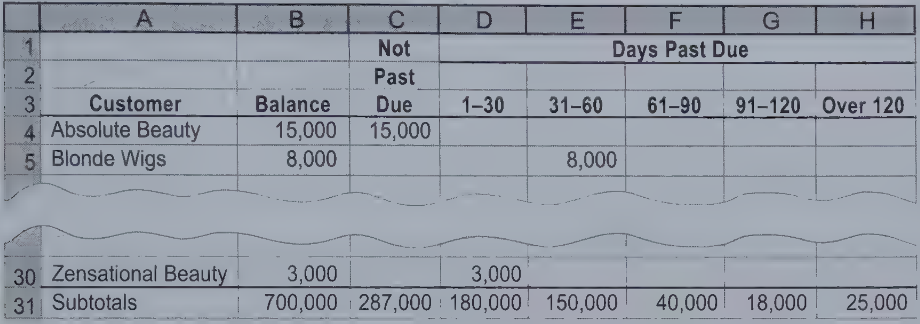
3. Determine the expected net realizable value of the accounts receivable as of December 31.
4. Assuming that instead of basing the provision for uncollectible accounts on an analysis of receivables, the adjusting entry on December 31 had been based on an estimated expense of ½ of 1% of the net sales of $9,600,000 for the year, determine the following:
   a. Bad debt expense for the year.
   b. Balance in the allowance account after the adjustment of December 31.
   c. Expected net realizable value of the accounts receivable as of December 31.

OBJ. 4

✓ 3. $72,290

PR 9-2B Aging of receivables; estimating allowance for doubtful accounts

Capri Wigs Company supplies wigs and hair care products to beauty salons throughout California and the Pacific Northwest. The accounts receivable clerk for Capri Wigs prepared the following partially completed aging of receivables schedule as of the end of business on December 31, 2011:



	A	B	C	D	E	F	G	H
1			Not	Days Past Due				
2			Past					
3	Customer	Balance	Due	1–30	31–60	61–90	91–120	Over 120
4	Absolute Beauty	15,000	15,000					
5	Blonde Wigs	8,000			8,000			
30	Zensational Beauty	3,000		3,000				
31	Subtotals	700,000	287,000	180,000	150,000	40,000	18,000	25,000

The following accounts were unintentionally omitted from the aging schedule:

Customer	Due Date	Balance
Shining Beauty	May 28, 2011	$4,000
Paradise Beauty Store	Sept. 7, 2011	7,000
Amazing Hair Products	Oct. 17, 2011	1,000
Hairy's Hair Care	Oct. 24, 2011	1,500
Golden Images	Nov. 23, 2011	1,600
Oh The Hair	Nov. 29, 2011	3,500
All About Hair	Dec. 2, 2011	4,000
Lasting Images	Jan. 5, 2012	9,400

Capri Wigs has a past history of uncollectible accounts by age category, as follows:

Age Class	Percent Uncollectible
Not past due	2%
1–30 days past due	5
31–60 days past due	12
61–90 days past due	16
91–120 days past due	40
Over 120 days past due	75

Instructions

1. Determine the number of days past due for each of the preceding accounts.
2. Complete the aging of receivables schedule by adding the omitted accounts to the bottom of the schedule and updating the totals.
3. Estimate the allowance for doubtful accounts, based on the aging of receivables schedule.
4. Assume that the allowance for doubtful accounts for Capri Wigs has a credit balance of $3,040 before adjustment on December 31, 2011. Journalize the adjustment for uncollectible accounts.
5. Assume that the adjusting entry in (4) was inadvertently omitted, how would the omission affect the balance sheet and income statement?

OBJ. 3, 4, 5

✓ 1. Year 4: Balance of allowance account, end of year, $13,900

PR 9-3B Compare two methods of accounting for uncollectible receivables

Cyber Tech Company, which operates a chain of 25 electronics supply stores, has just completed its fourth year of operations. The direct write-off method of recording bad debt expense has been used during the entire period. Because of substantial increases in sales volume and the amount of uncollectible accounts, the firm is considering changing to the allowance method. Information is requested as to the effect that an annual provision of ½% of sales would have had on the amount of bad debt expense reported for

each of the past four years. It is also considered desirable to know what the balance of Allowance for Doubtful Accounts would have been at the end of each year. The following data have been obtained from the accounts:

			Year of Origin of Accounts Receivable Written Off as Uncollectible			
Year	**Sales**	**Uncollectible Accounts Written Off**	**1st**	**2nd**	**3rd**	**4th**
1st	$1,400,000	$ 1,300	$1,300			
2nd	2,000,000	3,600	1,500	$2,100		
3rd	3,000,000	13,500	4,000	3,300	$6,200	
4th	3,600,000	17,700		4,000	6,100	$7,600

Instructions

1. Assemble the desired data, using the following column headings:

	Bad Debt Expense			
Year	**Expense Actually Reported**	**Expense Based on Estimate**	**Increase (Decrease) in Amount of Expense**	**Balance of Allowance Account, End of Year**

2. Experience during the first four years of operations indicated that the receivables were either collected within two years or had to be written off as uncollectible. Does the estimate of ½% of sales appear to be reasonably close to the actual experience with uncollectible accounts originating during the first two years? Explain.

OBJ. 6

✔ 1. Note 1: Due date, June 2; Interest due at maturity, $100

PR 9-4B Details of notes receivable and related entries

Media Ads Co. produces advertising videos. During the last six months of the current fiscal year, Media Ads Co. received the following notes:

	Date	Face Amount	Term	Interest Rate
1.	Apr. 3	$15,000	60 days	4%
2.	May 19	57,600	45 days	6
3.	Aug. 7	50,000	90 days	5
4.	Sept. 4	20,000	90 days	6
5.	Nov. 21	27,000	60 days	8
6.	Dec. 16	21,600	60 days	6

Instructions

1. Determine for each note (a) the due date and (b) the amount of interest due at maturity, identifying each note by number.
2. Journalize the entry to record the dishonor of Note (3) on its due date.
3. Journalize the adjusting entry to record the accrued interest on Notes (5) and (6) on December 31.
4. Journalize the entries to record the receipt of the amounts due on Notes (5) and (6) in January and February.

OBJ. 6

PR 9-5B Notes receivable entries

The following data relate to notes receivable and interest for El Rayo Co., a financial services company. (All notes are dated as of the day they are received.)

Mar. 1. Received a $90,000, 6%, 60-day note on account.
25. Received a $10,000, 4%, 90-day note on account.
Apr. 30. Received $90,900 on note of March 1.
May 16. Received a $36,000, 7%, 90-day note on account.
31. Received a $25,000, 6%, 30-day note on account.

June 23. Received $10,100 on note of March 25.
30. Received $25,125 on note of May 31.
July 1. Received a $28,000, 9%, 30-day note on account.
31. Received $28,210 on note of July 1.
Aug. 14. Received $36,630 on note of May 16.

Instructions
Journalize the entries to record the transactions.

OBJ. 6

PR 9-6B Sales and notes receivable transactions

The following were selected from among the transactions completed during the current year by Indigo Co., an appliance wholesale company:

Jan. 13. Sold merchandise on account to Boylan Co., $32,000. The cost of merchandise sold was $19,200.
Mar. 10. Accepted a 60-day, 6% note for $32,000 from Boylan Co. on account.
May 9. Received from Boylan Co. the amount due on the note of March 10.
June 10. Sold merchandise on account to Holen for $18,000. The cost of merchandise sold was $10,000.
15. Loaned $24,000 cash to Angie Jones, receiving a 30-day, 7% note.
20. Received from Holen the amount due on the invoice of June 10, less 2% discount.
July 15. Received the interest due from Angie Jones and a new 60-day, 9% note as a renewal of the loan of June 15. (Record both the debit and the credit to the notes receivable account.)
Sept. 13. Received from Angie Jones the amount due on her note of July 15.
13. Sold merchandise on account to Aztec Co., $40,000. The cost of merchandise sold was $25,000.
Oct. 12. Accepted a 60-day, 6% note for $40,000 from Aztec Co. on account.
Dec. 11. Aztec Co. dishonored the note dated October 12.
26. Received from Aztec Co. the amount owed on the dishonored note, plus interest for 15 days at 12% computed on the maturity value of the note.

Instructions
Journalize the transactions.

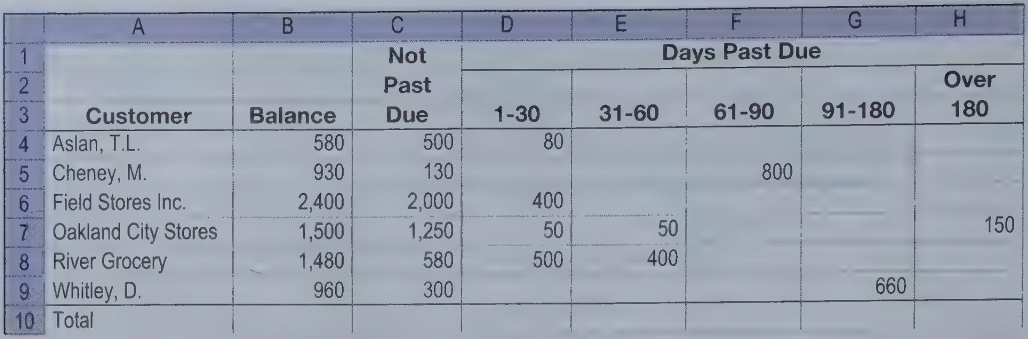
Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA 9-1 Aging of receivables schedule

Brandy Company wholesales grocery food products to grocery stores. The accounts receivable clerk for Brandy Company prepared the following partially completed aging of receivables schedule on December 31, 2011.



	A	B	C	D	E	F	G	H
1			Not	Days Past Due				
2			Past					Over
3	Customer	Balance	Due	1-30	31-60	61-90	91-180	180
4	Aslan, T.L.	580	500	80				
5	Cheney, M.	930	130			800		
6	Field Stores Inc.	2,400	2,000	400				
7	Oakland City Stores	1,500	1,250	50	50			150
8	River Grocery	1,480	580	500	400			
9	Whitley, D.	960	300				660	
10	Total							

Brandy Company has a past history of uncollectible accounts by age category, as follows:

Age Class	Percent Uncollectible
Not past due	1%
1–30 days past due	3%
31–60 days past due	7%
61–90 days past due	10%
91–180 days past due	15%
Over 180 days past due	20%

a. Open the Excel file *SA9-1_2e.*

b. Complete the aging of receivables schedule by using spreadsheet software.

c. Estimate the allowance for doubtful accounts, based on the aging of receivables schedule.

d. Assume that after additional historical analysis, the accounts receivable clerk revised the percent uncollectible as follows:

Age Class	Percent Uncollectible
Not past due	1%
1–30 days past due	2%
31–60 days past due	7%
61–90 days past due	12%
91–180 days past due	20%
Over 180 days past due	40%

e. Determine the estimate for the allowance for doubtful accounts under the revised percent uncollectible assumptions.

f. When you have completed the receivables aging schedule, perform a "save as," replacing the entire file name with the following:

SA9-1_2e[your first name initial]_[your last name]

SA 9-2 Aging of receivables schedule

The Lawson Company accounts receivable clerk assembled customer data at year-end as follows:

Customer Name	Accounts Receivable Balance	Number of Days Past Due
Kress, T.	$2,400	Not past due
Bradley, V.	1,580	14
Silver, K.	500	123
Ng, N.	950	75
Horowitz, S.	670	41
Stevens, K.	3,100	Not past due
Wilde, P.	240	68
Total	$9,440	

A past history of uncollectible accounts was used to develop the following:

Age Class	Percent Uncollectible
Not past due	3%
1–30 days past due	8%
31–60 days past due	14%
61–90 days past due	20%
Over 90 days past due	30%

a. Open the Excel file *SA9-2_2e.*

b. Prepare an aging of receivables schedule using spreadsheet software. Use the Data-Sort command to alphabetize the input data in the customer balance table.

c. Estimate the allowance for doubtful accounts, based on the aging of receivables schedule.

d. When you have completed the receivables aging schedule, perform a "save as," replacing the entire file name with the following:

SA9-2_2e[your first name initial]_[your last name]

SA 9-3 Determine interest on notes

Determine the amount of interest due at maturity on the following notes:

	Face Amount	Interest Rate	Term of Note
a.	$24,000	5%	60 days
b.	94,000	4%	45 days
c.	49,000	6%	90 days
d.	16,000	7%	36 days
e.	55,000	6%	30 days

a. Open the Excel file *SA9-3_2e.*

b. When you have determined the interest calculation, perform a "save as," replacing the entire file name with the following:

SA9-3_2e[your first name initial]_[your last name]

SA 9-4

Entries for notes receivable, including year-end interest adjustment, is as follows:

2011

Dec. 11. Received a $56,000, 45-day, 4.5% noted dated Dec. 11 from Kimberly Co. on account.

31. Recorded an adjusting entry for accrued interest on the note of December 11.

31. Recorded the closing entry for interest revenue.

2012

Jan. 25. Received payment of note and interest from Kimberly Co.

a. Open the Excel file *SA9-4_2e.*

b. Prepare a spreadsheet to determine the accrued interest on December 31, 2011, and interest earned on January 25, 2012.

c. When you have determined the interest calculation, perform a "save as," replacing the entire file name with the following:

SA9-4_2e[your first name initial]_[your last name]

CHAPTER

10

hoto/W. A. Harewood

Fixed Assets and Intangible Assets

Fatburger Inc.

Do you remember purchasing your first car? You probably didn't buy your first car like you would buy a CD. Purchasing a new or used car is expensive. In addition, you would drive (use) the car for the next 3–5 years or longer. As a result, you might spend hours or weeks considering different makes and models, safety ratings, warranties, and operating costs before deciding on the final purchase.

Like buying her first car, Lovie Yancey spent a lot of time before deciding to open her first restaurant. In 1952, she created the biggest, juiciest hamburger that anyone had ever seen. She called it a Fatburger. The restaurant initially started as a 24-hour operation to cater to the schedules of professional musicians. As a fan of popular music and its performers, Yancey played rhythm and blues, jazz, and blues recordings for her customers. Fatburger's popularity with entertainers was illustrated when its name was used in a 1992 rap by Ice Cube. "Two in the mornin' got the Fatburger," Cube said, in "It Was a Good Day," a track on his *Predator* album.

The demand for this incredible burger was such that, in 1980, Ms. Yancey decided to offer Fatburger franchise opportunities. In 1990, with the goal of expanding Fatburger throughout the world, **Fatburger Inc.** purchased the business from Ms. Yancey. Today, Fatburger has grown to a multi-restaurant chain with owners and investors such as talk show host Montel Williams, former Cincinnati Bengals' tackle Willie Anderson, comedian David Spade, and musicians Cher, Janet Jackson, and Pharrell.

So, how much would it cost you to open a Fatburger restaurant? On average, the total investment begins at over $700,000 per restaurant. Thus, in starting a Fatburger restaurant, you would be making a significant investment that would affect your life for years to come.

This chapter discusses the accounting for investments in fixed assets such as those used to open a Fatburger restaurant. How to determine the portion of the fixed asset that becomes an expense over time is also discussed. Finally, the accounting for the disposal of fixed assets and accounting for intangible assets such as patents and copyrights are discussed.

Learning Objectives

	After studying this chapter, you should be able to:	Example Exercises		Page
OBJ 1	Define, classify, and account for the cost of fixed assets.			
	Nature of Fixed Assets			
	Classifying Costs			
	The Cost of Fixed Assets			
	Capital and Revenue Expenditures	EE 10-1		448
	Leasing Fixed Assets			
OBJ 2	Compute depreciation, using the following methods: straight-line method, units-of production method, and double-declining-balance method.			
	Accounting for Depreciation			
	Factors in Computing Depreciation Expense			
	Straight-Line Method	EE 10-2	excel success	451
	Units-of-Production Method	EE 10-3	excel success	452
	Double-Declining-Balance Method	EE 10-4		454
	Comparing Depreciation Methods			
	Depreciation for Federal Income Tax			
	Revising Depreciation Estimates	EE 10-5		457
OBJ 3	Journalize entries for the disposal of fixed assets.			
	Disposal of Fixed Assets			
	Discarding Fixed Assets			
	Selling Fixed Assets	EE 10-6		459
OBJ 4	Compute depletion and journalize the entry for depletion.			
	Natural Resources	EE 10-7		460
OBJ 5	Describe the accounting for intangible assets, such as patents, copyrights, and goodwill.			
	Intangible Assets			
	Patents	EE 10-8		463
	Copyrights and Trademarks			
	Goodwill	EE 10-8		463
OBJ 6	Describe how depreciation expense is reported in an income statement and prepare a balance sheet that includes fixed assets and intangible assets.			
	Financial Reporting for Fixed Assets and Intangible Assets			
OBJ 7	Describe and illustrate the fixed asset turnover ratio to assess the efficiency of a company's use of its fixed assets.			
	Financial Analysis and Interpretation: Fixed Asset Turnover Ratio	EE 10-9		465

At a Glance 10 Page 467

OBJ 1 Define, classify, and account for the cost of fixed assets.

Nature of Fixed Assets

Fixed assets are long-term or relatively permanent assets such as equipment, machinery, buildings, and land. Other descriptive titles for fixed assets are *plant assets* or *property, plant, and equipment*. Fixed assets have the following characteristics:

1. They exist physically and, thus, are *tangible* assets.
2. They are owned and used by the company in its normal operations.
3. They are not offered for sale as part of normal operations.

Exhibit 1 shows the percent of fixed assets to total assets for some select companies. As shown in Exhibit 1, fixed assets are often a significant portion of the total assets of a company.

EXHIBIT 1 **Fixed Assets as a Percent of Total Assets—Selected Companies**

	Fixed Assets as a Percent of Total Assets
Alcoa Inc.	47%
ExxonMobil Corporation	53
Ford Motor Company	25
Kroger	57
Office Depot Inc.	30
United Parcel Service, Inc.	57
Verizon Communications	43
Walgreen Co.	43
Wal-Mart	59

Classifying Costs

A cost that has been incurred may be classified as a fixed asset, an investment, or an expense. Exhibit 2 shows how to determine the proper classification of a cost and how it should be recorded. As shown in Exhibit 2, classifying a cost involves the following steps:

IFRS **IFRS**
See Appendix D for more information

Step 1. Is the purchased item long-lived?

If *yes*, the item is recorded as an asset on the balance sheet, either as a fixed asset or an investment. Proceed to Step 2.

If *no*, the item is classified and recorded as an *expense*.

Step 2. Is the asset used in normal operations?

If *yes*, the asset is classified and recorded as a *fixed asset*.

If *no*, the asset is classified and recorded as an *investment*.

Items that are classified and recorded as fixed assets include land, buildings, or equipment. Such assets normally last more than a year and are used in the normal operations. However, standby equipment for use during peak periods or when other equipment breaks down is still classified as a fixed asset even though it is not used very often. In contrast, fixed assets that have been abandoned or are no longer used in operations are not classified as fixed assets.

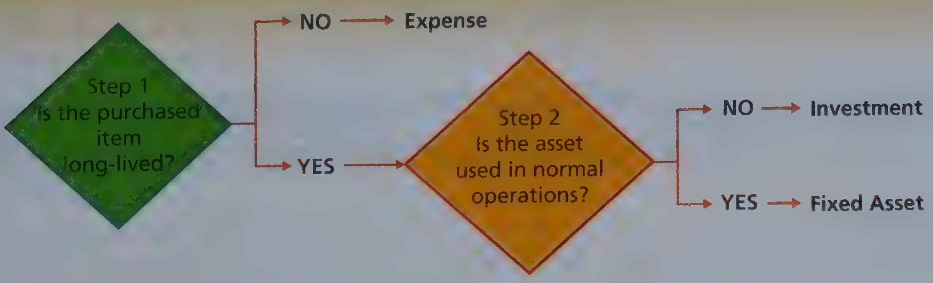


EXHIBIT 2

Classifying Costs

Although fixed assets may be sold, they should not be offered for sale as part of normal operations. For example, cars and trucks offered for sale by an automotive dealership are not fixed assets of the dealership. On the other hand, a tow truck used in the normal operations of the dealership is a fixed asset of the dealership.

Investments are long-lived assets that are not used in the normal operations and are held for future resale. Such assets are reported on the balance sheet in a section

entitled *Investments*. For example, undeveloped land acquired for future resale would be classified and reported as an investment, not land.

The Cost of Fixed Assets

In addition to purchase price, costs of acquiring fixed assets include all amounts spent getting the asset in place and ready for use. For example, freight costs and the costs of installing equipment are part of the asset's total cost.

Exhibit 3 summarizes some of the common costs of acquiring fixed assets. These costs are recorded by debiting the related fixed asset account, such as Land,[1] Building, Land Improvements, or Machinery and Equipment.

EXHIBIT 3 Costs of Acquiring Fixed Assets

Building

- Architects' fees
- Engineers' fees
- Insurance costs incurred during construction
- Interest on money borrowed to finance construction
- Walkways to and around the building
- Sales taxes
- Repairs (purchase of existing building)
- Reconditioning (purchase of existing building)
- Modifying for use
- Permits from government agencies

Machinery & Equipment

- Sales taxes
- Freight
- Installation
- Repairs (purchase of used equipment)
- Reconditioning (purchase of used equipment)
- Insurance while in transit
- Assembly
- Modifying for use
- Testing for use
- Permits from government agencies

Land

- Purchase price
- Sales taxes
- Permits from government agencies
- Broker's commissions
- Title fees
- Surveying fees
- Delinquent real estate taxes
- Removing unwanted building less any salvage
- Grading and leveling
- Paving a public street bordering the land

Land Improvements

- Trees and shrubs
- Fences
- Outdoor lighting
- Paved parking areas

Only costs necessary for preparing the fixed asset for use are included as a cost of the asset. Unnecessary costs that do not increase the asset's usefulness are recorded as an expense. For example, the following costs are included as an expense:

1. Vandalism
2. Mistakes in installation
3. Uninsured theft
4. Damage during unpacking and installing
5. Fines for not obtaining proper permits from governmental agencies

A company may incur costs associated with constructing a fixed asset such as a new building. The direct costs incurred in the construction, such as labor and

---

[1] As discussed here, land is assumed to be used only as a location or site and not for its mineral deposits or other natural resources.

materials, should be capitalized as a debit to an account entitled Construction in Progress. When the construction is complete, the costs are reclassified by crediting Construction in Progress and debiting the proper fixed asset account such as Building. For some companies, construction in progress can be significant.

Intel Corporation reported in a recent annual report construction in progress of $2.7 billion, which was 16% of its total fixed assets.

IFRS IFRS

See Appendix D for more information

Capital and Revenue Expenditures

Once a fixed asset has been acquired and placed in service, costs may be incurred for ordinary maintenance and repairs. In addition, costs may be incurred for improving an asset or for extraordinary repairs that extend the asset's useful life. Costs that benefit only the current period are called **revenue expenditures**. Costs that improve the asset or extend its useful life are **capital expenditures**.

Ordinary Maintenance and Repairs Costs related to the ordinary maintenance and repairs of a fixed asset are recorded as an expense of the current period. Such expenditures are *revenue expenditures* and are recorded as increases to Repairs and Maintenance Expense. For example, $300 paid for a tune-up of a delivery truck is recorded as follows:

Repairs and Maintenance Expense	300	
Cash		300

Asset Improvements After a fixed asset has been placed in service, costs may be incurred to improve the asset. For example, the service value of a delivery truck might be improved by adding a $5,500 hydraulic lift to allow for easier and quicker loading of cargo. Such costs are *capital expenditures* and are recorded as increases to the fixed asset account. In the case of the hydraulic lift, the expenditure is recorded as follows:

Delivery Truck	5,500	
Cash		5,500

Because the cost of the delivery truck has increased, depreciation for the truck would also change over its remaining useful life.

Extraordinary Repairs After a fixed asset has been placed in service, costs may be incurred to extend the asset's useful life. For example, the engine of a forklift that is near the end of its useful life may be overhauled at a cost of $4,500, extending its useful life by eight years. Such costs are *capital expenditures* and are recorded as a decrease in an accumulated depreciation account. In the case of the forklift, the expenditure is recorded as follows:

Accumulated Depreciation—Forklift	4,500	
Cash		4,500

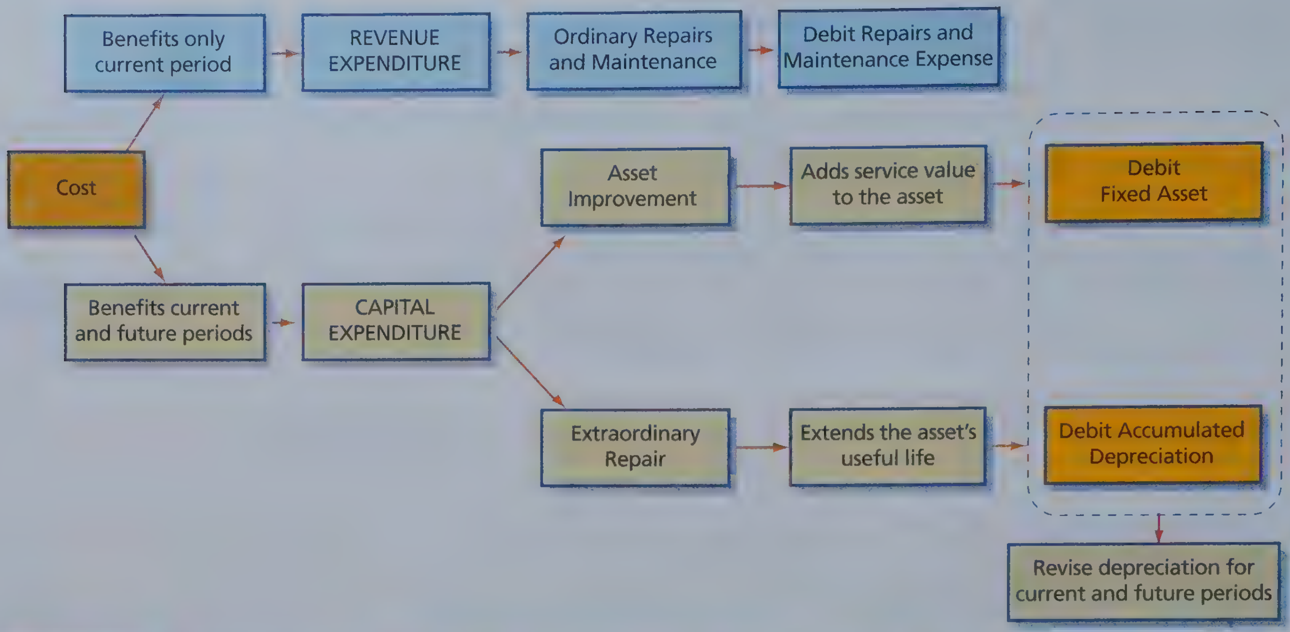
Integrity, Objectivity, and Ethics in Business

CAPITAL CRIME

One of the largest alleged accounting frauds in history involved the improper accounting for capital expenditures. WorldCom, the second largest telecommunications company in the United States at the time, improperly treated maintenance expenditures on its telecommunications network as capital expenditures. As a result, the company had to restate its prior years' earnings downward by nearly $4 billion to correct this error. The company declared bankruptcy within months of disclosing the error, and the CEO was sentenced to 25 years in prison.

Because the forklift's remaining useful life has changed, depreciation for the forklift would also change based on the new book value of the forklift.

The accounting for revenue and capital expenditures is summarized on the next page.



Example Exercise 10-1 Capital and Revenue Expenditures

On June 18, GTS Co. paid $1,200 to upgrade a hydraulic lift and $45 for an oil change for one of its delivery trucks. Journalize the entries for the hydraulic lift upgrade and oil change expenditures.

Follow My Example 10-1

June 18	Delivery Truck	1,200	
	Cash		1,200
18	Repairs and Maintenance Expense	45	
	Cash		45

Practice Exercises: **PE 10-1A, PE 10-1B**

Leasing Fixed Assets

A *lease* is a contract for the use of an asset for a period of time. Leases are often used in business. For example, automobiles, computers, medical equipment, buildings, and airplanes are often leased.

The two parties to a lease contract are as follows:

1. The *lessor* is the party who owns the asset.
2. The *lessee* is the party to whom the rights to use the asset are granted by the lessor.

Delta Air Lines leases facilities, aircraft, and equipment using both capital and operating leases.

Under a lease contract, the lessee pays rent on a periodic basis for the lease term. The lessee accounts for a lease contract in one of two ways depending on how the lease contract is classified. A lease contract can be classified as either a:

1. *Capital lease* or
2. *Operating lease*

A **capital lease** is accounted for as if the lessee has purchased the asset. The lessee debits an asset account for the fair market value of the asset and credits a long-term lease liability account. The asset is then written off as an expense (amortized) over the life of the capital lease. The accounting for capital leases is discussed in more advanced accounting texts.

An **operating lease** is accounted for as if the lessee is renting the asset for the lease term. The lessee records operating lease payments by debiting *Rent Expense* and crediting *Cash*. The lessee's future lease obligations are not recorded in the accounts. However, such obligations are disclosed in notes to the financial statements.

The asset rentals described in earlier chapters of this text were accounted for as operating leases. To simplify, all leases are assumed to be operating leases throughout this text.

Accounting for Depreciation

OBJ. 2 Compute depreciation, using the following methods: straight-line method, units-of-production method, and double-declining-balance method.

Over time, fixed assets, with the exception of land, lose their ability to provide services. Thus, the costs of fixed assets such as equipment and buildings should be recorded as an expense over their useful lives. This periodic recording of the cost of fixed assets as an expense is called **depreciation**. Because land has an unlimited life, it is not depreciated.

The adjusting entry to record depreciation debits *Depreciation Expense* and credits a *contra asset* account entitled *Accumulated Depreciation* or *Allowance for Depreciation*. The use of a contra asset account allows the original cost to remain unchanged in the fixed asset account.

Note:
The adjusting entry to record depreciation debits Depreciation Expense and credits Accumulated Depreciation.

Depreciation can be caused by physical or functional factors.

1. *Physical depreciation* factors include wear and tear during use or from exposure to weather.
2. *Functional depreciation* factors include obsolescence and changes in customer needs that cause the asset to no longer provide services for which it was intended. For example, equipment may become obsolete due to changing technology.

Two common misunderstandings that exist about *depreciation* as used in accounting include:

1. Depreciation does not measure a decline in the market value of a fixed asset. Instead, depreciation is an allocation of a fixed asset's cost to expense over the asset's useful life. Thus, the book value of a fixed asset (cost less accumulated depreciation) usually does not agree with the asset's market value. This is justified in accounting because a fixed asset is for use in a company's operations rather than for resale.
2. Depreciation does not provide cash to replace fixed assets as they wear out. This misunderstanding may occur because depreciation, unlike most expenses, does not require an outlay of cash when it is recorded.

Factors in Computing Depreciation Expense

Three factors determine the depreciation expense for a fixed asset. These three factors are as follows:

1. The asset's initial cost
2. The asset's expected useful life
3. The asset's estimated residual value

The initial *cost* of a fixed asset is determined using the concepts discussed and illustrated earlier in this chapter.

The *expected useful life* of a fixed asset is estimated at the time the asset is placed into service. Estimates of expected useful lives are available from industry trade associations. The Internal Revenue Service also publishes guidelines for useful lives, which may be helpful for financial reporting purposes. However, it is not uncommon for different companies to use a different useful life for similar assets.

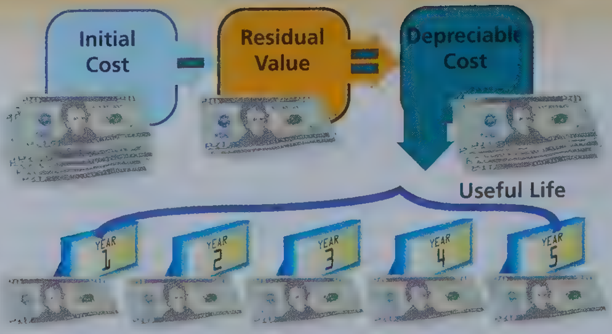
The **residual value** of a fixed asset at the end of its useful life is estimated at the time the asset is placed into service. Residual value is sometimes referred to as *scrap value, salvage value*, or *trade-in value*. The difference between a fixed asset's initial cost and its residual value is called the asset's *depreciable cost*. The depreciable cost is the amount of the asset's cost that is allocated over its useful life as depreciation expense. If a fixed asset has no residual value, then its entire cost should be allocated to depreciation.

Exhibit 4 shows the relationship between depreciation expense and a fixed asset's initial cost, expected useful life, and estimated residual value.

For an asset placed into or taken out of service during the first half of a month, many companies compute depreciation on the asset for the entire month. That is, the asset is treated as having been purchased or sold on the first day of *that* month. Likewise,

EXHIBIT 4

Depreciation Expense Factors



purchases and sales during the second half of a month are treated as having occurred on the first day of the *next* month. To simplify, this practice is used in this chapter.

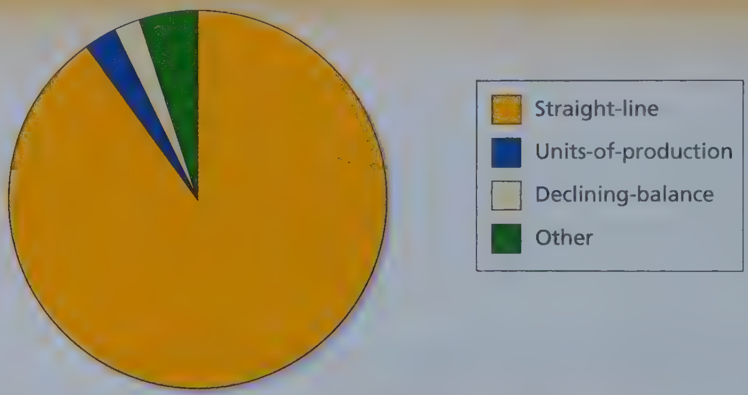
The three depreciation methods used most often are as follows:[2]

1. Straight-line depreciation
2. Units-of-production depreciation
3. Double-declining-balance depreciation

Exhibit 5 shows how often these methods are used in financial statements.

EXHIBIT 5

Use of Depreciation Methods



Source: *Accounting Trends & Techniques*, 63rd ed., American Institute of Certified Public Accountants, New York, 2009.

It is not necessary for a company to use only one method of computing depreciation for all of its fixed assets. For example, a company may use one method for depreciating equipment and another method for depreciating buildings. A company may also use different methods for determining income and property taxes.

Straight-Line Method

The **straight-line method** provides for the same amount of depreciation expense for each year of the asset's useful life. As shown in Exhibit 5, the straight-line method is by far the most widely used depreciation method.

To illustrate, assume that equipment was purchased on January 1 as follows:

Initial cost	$24,000
Expected useful life	5 years
Estimated residual value	$2,000

The annual straight-line depreciation of $4,400 is computed below.

$$\text{Annual Depreciation} = \frac{\text{Cost} - \text{Residual Value}}{\text{Useful Life}} = \frac{\$24{,}000 - \$2{,}000}{\text{5 Years}} = \$4{,}400$$

If an asset is used for only part of a year, the annual depreciation is prorated. For example, assume that the preceding equipment was purchased and placed into

---

[2] Another method not often used today, called the *sum-of-the-years-digits method*, is described and illustrated in an online appendix located at **www.cengage.com/accounting/reeve**.

service on October 1. The depreciation for the year ending December 31 would be **$1,100**, computed as follows:

First-Year Partial Depreciation = $4,400 × 3/12 = $1,100

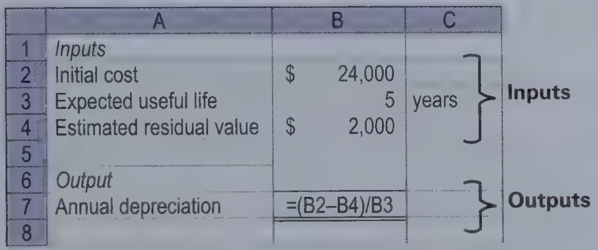
The computation of straight-line depreciation may be simplified by converting the annual depreciation to a percentage of depreciable cost.[3] The straight-line percentage is determined by dividing 100% by the number of years of expected useful life, as shown below.

Expected Years of Useful Life	Straight-Line Percentage
5 years	20% (100%/5)
8 years	12.5% (100%/8)
10 years	10% (100%/10)
20 years	5% (100%/20)
25 years	4% (100%/25)

For the preceding equipment, the annual depreciation of $4,400 can be computed by multiplying the depreciable cost of $22,000 by 20% (100%/5).

excel SUCCESS

The straight-line method of depreciation can be calculated on a spreadsheet as follows:



	A	B	C
1	*Inputs*		
2	Initial cost	$ 24,000	
3	Expected useful life	5	years
4	Estimated residual value	$ 2,000	
5			
6	*Output*		
7	Annual depreciation	=(B2–B4)/B3	
8			

Rather than using a formula, periodic depreciation can also be calculated using Excel depreciation functions. For example, straight-line depreciation can be determined using the =SLN function.

The spreadsheet is divided into inputs and outputs. The formula in B7 is the straight-line depreciation formula using cell references of the input variables, =(B2-B4)/B3. Use parentheses as shown here so that the calculation is ordered properly.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Example Exercise 10-2 Straight-Line Depreciation

OBJ. 2

Equipment acquired at the beginning of the year at a cost of $125,000 has an estimated residual value of $5,000 and an estimated useful life of 10 years. Determine (a) the depreciable cost, (b) the straight-line rate, and (c) the annual straight-line depreciation.

Follow My Example 10-2

a. $120,000 ($125,000 – $5,000)
b. 10% = 1/10
c. $12,000 ($120,000 × 10%), or ($120,000/10 years)

Practice Exercises: **PE 10-2A, PE 10-2B**

As shown above, the straight-line method is simple to use. When an asset's revenues are about the same from period to period, straight-line depreciation provides a good matching of depreciation expense with the asset's revenues.

Units-of-Production Method

The **units-of-production method** provides the same amount of depreciation expense for each unit of production. Depending on the asset, the units of production can be expressed in terms of hours, miles driven, or quantity produced.

Norfolk Southern Corporation depreciates its train engines based on hours of operation.

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[3] The depreciation rate may also be expressed as a fraction. For example, the annual straight-line rate for an asset with a three-year useful life is 1/3.

The units-of-production method is applied in two steps.

Step 1. Determine the depreciation per unit as:

$$\text{Depreciation per Unit} = \frac{\text{Cost} - \text{Residual Value}}{\text{Total Units of Production}}$$

Step 2. Compute the depreciation expense as:

$$\text{Depreciation Expense} = \text{Depreciation per Unit} \times \text{Total Units of Production Used}$$

To illustrate, assume that the equipment in the preceding example is expected to have a useful life of 10,000 operating hours. During the year, the equipment was operated 2,100 hours. The units-of-production depreciation for the year is \$4,620, as shown below.

Step 1. Determine the depreciation per hour as:

$$\text{Depreciation per Hour} = \frac{\text{Cost} - \text{Residual Value}}{\text{Total Units of Production}} = \frac{\$24{,}000 - \$2{,}000}{10{,}000 \text{ Hours}} = \$2.20 \text{ per Hour}$$

Step 2. Compute the depreciation expense as:

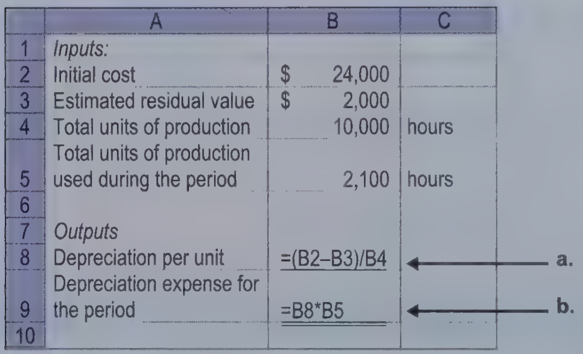
$$\text{Depreciation Expense} = \text{Depreciation per Unit} \times \text{Total Units of Production Used}$$

$$\text{Depreciation Expense} = \$2.20 \text{ per Hour} \times 2{,}100 \text{ Hours} = \$4{,}620$$

The units-of-production method is often used when a fixed asset's in-service time (or use) varies from year to year. In such cases, the units-of-production method matches depreciation expense with the asset's revenues.

excel SUCCESS

The units of production method of depreciation can be calculated on a spreadsheet as follows:



	A	B	C
1	*Inputs:*		
2	Initial cost	\$ 24,000	
3	Estimated residual value	\$ 2,000	
4	Total units of production	10,000	hours
5	Total units of production used during the period	2,100	hours
6			
7	*Outputs*		
8	Depreciation per unit	=(B2–B3)/B4	
9	Depreciation expense for the period	=B8*B5	
10			

a. Enter the formula for the depreciation per unit in cell B8, =(B2-B3)/B4. Use parentheses as shown here so that the calculation is ordered properly.

b. Enter in B9 the formula for determining the depreciation for the period. The formula multiplies the rate in B8 by the units of production used during the period in B5, =B8*B5.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Example Exercise 10-3 Units-of-Production Depreciation

OBJ 2

Equipment acquired at a cost of \$180,000 has an estimated residual value of \$10,000, has an estimated useful life of 40,000 hours, and was operated 3,600 hours during the year. Determine (a) the depreciable cost, (b) the depreciation rate, and (c) the units-of-production depreciation for the year.

Follow My Example 10-3

a. \$170,000 (\$180,000 – \$10,000)
b. \$4.25 per hour (\$170,000/40,000 hours)
c. \$15,300 (3,600 hours × \$4.25)

Practice Exercises: **PE 10-3A, PE 10-3B**

Double-Declining-Balance Method

The **double-declining-balance method** provides for a declining periodic expense over the expected useful life of the asset. The double-declining-balance method is applied in three steps.

Step 1. Determine the straight-line percentage using the expected useful life.
Step 2. Determine the double-declining-balance rate by multiplying the straight-line rate from Step 1 by 2.
Step 3. Compute the depreciation expense by multiplying the double-declining-balance rate from Step 2 times the book value of the asset.

To illustrate, the equipment purchased in the preceding example is used to compute double-declining-balance depreciation. For the first year, the depreciation is **$9,600**, as shown below.

Step 1. Straight-line percentage = 20% (100%/5)
Step 2. Double-declining-balance rate = 40% (20% × 2)
Step 3. Depreciation expense = $9,600 ($24,000 × 40%)

For the first year, the book value of the equipment is its initial cost of $24,000. After the first year, the **book value** (cost minus accumulated depreciation) declines and, thus, the depreciation also declines. The double-declining-balance depreciation for the full five-year life of the equipment is shown below.

Year	Cost	Acc. Dep. at Beginning of Year	Book Value at Beginning of Year		Double-Declining-Balance Rate	Depreciation for Year	Book Value at End of Year
1	$24,000		$24,000.00	×	40%	$9,600.00	$14,400.00
2	24,000	$ 9,600.00	14,400.00	×	40%	5,760.00	8,640.00
3	24,000	15,360.00	8,640.00	×	40%	3,456.00	5,184.00
4	24,000	18,816.00	5,184.00	×	40%	2,073.60	3,110.40
5	24,000	20,889.60	3,110.40		—	1,110.40	2,000.00

When the double-declining-balance method is used, the estimated residual value is *not* considered. However, the asset should not be depreciated below its estimated residual value. In the above example, the estimated residual value was $2,000. Therefore, the depreciation for the fifth year is $1,110.40 ($3,110.40 – $2,000.00) instead of $1,244.16 (40% × $3,110.40).

Like straight-line depreciation, if an asset is used for only part of a year, the annual depreciation is prorated. For example, assume that the preceding equipment was purchased and placed into service on October 1. The depreciation for the year ending December 31 would be $2,400, computed as follows:

First-Year Partial Depreciation = $9,600 × 3/12 = $2,400

The depreciation for the second year would then be $8,640, computed as follows:

Second-Year Depreciation = $8,640 = [40% × ($24,000 – $2,400)]

The double-declining-balance method provides a higher depreciation in the first year of the asset's use, followed by declining depreciation amounts. For this reason, the double-declining-balance method is called an **accelerated depreciation method**.

An asset's revenues are often greater in the early years of its use than in later years. In such cases, the double-declining-balance method provides a good matching of depreciation expense with the asset's revenues.

Example Exercise 10-4 Double-Declining-Balance Depreciation

OBJ. 2

Equipment acquired at the beginning of the year at a cost of $125,000 has an estimated residual value of $5,000 and an estimated useful life of 10 years. Determine (a) the double-declining-balance rate and (b) the double-declining-balance depreciation for the first year.

Follow My Example 10-4

a. 20% [(1/10) × 2]
b. $25,000 ($125,000 × 20%)

Practice Exercises: **PE 10-4A, PE 10-4B**

Comparing Depreciation Methods

The three depreciation methods are summarized in Exhibit 6. All three methods allocate a portion of the total cost of an asset to an accounting period, while never depreciating an asset below its residual value.

EXHIBIT 6

Summary of Depreciation Methods

Method	Useful Life	Depreciable Cost	Depreciation Rate	Depreciation Expense
Straight-line	Years	Cost less residual value	Straight-line rate*	Constant
Units-of-production	Total units of production	Cost less residual value	$\frac{\text{Cost} - \text{Residual value}}{\text{Total units of production}}$	Variable
Double-declining-balance	Years	Declining book value, but not below residual value	Straight-line rate* × 2	Declining

*Straight-line rate = (1/Useful life)

The straight-line method provides for the same periodic amounts of depreciation expense over the life of the asset. The units-of-production method provides for periodic amounts of depreciation expense that vary, depending on the amount the asset is used. The double-declining-balance method provides for a higher depreciation amount in the first year of the asset's use, followed by declining amounts.

The depreciation for the straight-line, units-of-production, and double-declining-balance methods is shown in Exhibit 7. The depreciation in Exhibit 7 is based on the

EXHIBIT 7

Comparing Depreciation Methods

	Depreciation Expense		
Year	Straight-Line Method	Units-of-Production Method	Double-Declining-Balance Method
1	$ 4,400*	$ 4,620 ($2.20 × 2,100 hrs.)	$ 9,600.00 ($24,000 × 40%)
2	4,400	3,300 ($2.20 × 1,500 hrs.)	5,760.00 ($14,400 × 40%)
3	4,400	5,720 ($2.20 × 2,600 hrs.)	3,456.00 ($8,640 × 40%)
4	4,400	3,960 ($2.20 × 1,800 hrs.)	2,073.60 ($5,184 × 40%)
5	4,400	4,400 ($2.20 × 2,000 hrs.)	1,110.40**
Total	$22,000	$22,000	$22,000.00

*$4,400 = ($24,000 – $2,000)/5 years
**$3,110.40 – $2,000.00 because the equipment cannot be depreciated below its residual value of $2,000.

equipment purchased in our prior illustrations. For the units-of-production method, we assume that the equipment was used as follows:

Year 1	2,100 hours
Year 2	1,500
Year 3	2,600
Year 4	1,800
Year 5	2,000
Total	10,000 hours

Depreciation for Federal Income Tax

The Internal Revenue Code uses the *Modified Accelerated Cost Recovery System (MACRS)* to compute depreciation for tax purposes. MACRS has eight classes of useful life and depreciation rates for each class. Two of the most common classes are the five-year class and the seven-year class.[4] The five-year class includes automobiles and light-duty trucks. The seven-year class includes most machinery and equipment. Depreciation for these two classes is similar to that computed using the double-declining-balance method.

In using the MACRS rates, residual value is ignored. Also, all fixed assets are assumed to be put in and taken out of service in the middle of the year. For the five-year-class assets, depreciation is spread over six years, as shown below.

Year	**MACRS 5-Year-Class Depreciation Rates**
1	20.0%
2	32.0
3	19.2
4	11.5
5	11.5
6	5.8
	100.0%

To simplify, a company will sometimes use MACRS for both financial statement and tax purposes. This is acceptable if MACRS does not result in significantly different amounts than would have been reported using one of the three depreciation methods discussed in this chapter.

Business Connection

DEPRECIATING ANIMALS?

Under MACRS, various farm animals may be depreciated. The period (years) over which some common classes of farm animals may be depreciated are shown in the table to the right.

Depreciation for farm animals begins when the animal reaches the age of maturity, which is normally when it can be worked, milked, or bred. For race horses, depreciation begins when a horse is put into training.

Class of Animal	**Years**
Dairy or breeding cattle	7–10
Goats and sheep	5
Hogs	3
Horses	3–12

---

[4] Real estate is in either a 27½-year or a 31½-year class and is depreciated by the straight-line method.

Revising Depreciation Estimates

Estimates of residual values and useful lives of fixed assets may change due to abnormal wear and tear or obsolescence. When new estimates are determined, they are used to determine the depreciation expense in future periods. The depreciation expense recorded in earlier years is not affected.[5]

To illustrate, assume the following data for a machine that was purchased on January 1, 2011.

Initial machine cost	$140,000
Expected useful life	5 years
Estimated residual value	$10,000
Annual depreciation using the straight-line method [($140,000 – $10,000)/5 years]	$26,000

At the end of 2012, the machine's book value (undepreciated cost) is $88,000, as shown below.

Initial machine cost	$140,000
Less accumulated depreciation ($26,000 per year × 2 years)	52,000
Book value (undepreciated cost), end of second year	$ 88,000

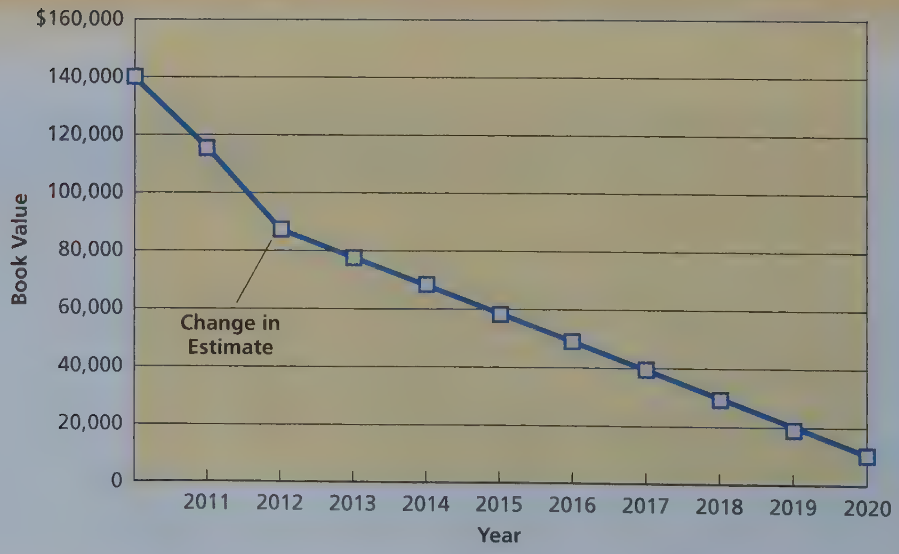
During 2013, the company estimates that the machine's remaining useful life is eight years (instead of three) and that its residual value is $8,000 (instead of $10,000). The depreciation expense for each of the remaining eight years is $10,000, computed as follows:

Book value (undepreciated cost), end of second year	$88,000
Less revised estimated residual value	8,000
Revised remaining depreciable cost	$80,000
Revised annual depreciation expense [($88,000 – $8,000)/8 years]	$10,000

Exhibit 8 shows the book value of the asset over its original and revised lives. After the depreciation is revised at the end of 2012, book value declines at a slower rate. At the end of year 2020, the book value reaches the revised residual value of $8,000.

EXHIBIT 8

Book Value of Asset with Change in Estimate



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[5] *FASB Accounting Standards Codification*, Section 250-10-05.

Example Exercise 10-5 Revision of Depreciation

OBJ. 2

A warehouse with a cost of $500,000 has an estimated residual value of $120,000, has an estimated useful life of 40 years, and is depreciated by the straight-line method. (a) Determine the amount of the annual depreciation. (b) Determine the book value at the end of the twentieth year of use. (c) Assuming that at the start of the twenty-first year the remaining life is estimated to be 25 years and the residual value is estimated to be $150,000, determine the depreciation expense for each of the remaining 25 years.

Follow My Example 10-5

a. $9,500 [($500,000 – $120,000)/40]
b. $310,000 [$500,000 – ($9,500 × 20)]
c. $6,400 [($310,000 – $150,000)/25]

Practice Exercises: **PE 10-5A, PE 10-5B**

Disposal of Fixed Assets

OBJ. 3 Journalize entries for the disposal of fixed assets.

Fixed assets that are no longer useful may be discarded or sold.[6] In such cases, the fixed asset is removed from the accounts. Just because a fixed asset is fully depreciated, however, does not mean that it should be removed from the accounts.

If a fixed asset is still being used, its cost and accumulated depreciation should remain in the ledger even if the asset is fully depreciated. This maintains accountability for the asset in the ledger. If the asset was removed from the ledger, the accounts would contain no evidence of the continued existence of the asset. In addition, cost and accumulated depreciation data on such assets are often needed for property tax and income tax reports.

Discarding Fixed Assets

If a fixed asset is no longer used and has no residual value, it is discarded. For example, assume that a fixed asset that is fully depreciated and has no residual value is discarded. The entry to record the discarding removes the asset and its related accumulated depreciation from the ledger.

To illustrate, assume that equipment acquired at a cost of $25,000 is fully depreciated at December 31, 2011. On February 14, 2012, the equipment is discarded. The entry to record the discard is as follows:

Feb.	14	Accumulated Depreciation—Equipment		25,000	
		Equipment			25,000
		To write off equipment discarded.			

Note:
The entry to record the disposal of a fixed asset removes the cost of the asset and its accumulated depreciation from the accounts.

If an asset has not been fully depreciated, depreciation should be recorded before removing the asset from the accounting records.

To illustrate, assume that equipment costing $6,000 with no estimated residual value is depreciated at a straight-line rate of 10%. On December 31, 2011, the accumulated depreciation balance, after adjusting entries, is $4,750. On March 24, 2012, the asset is removed from service and discarded. The entry to record the depreciation for the three months of 2012 before the asset is discarded is as follows:

Mar.	24	Depreciation Expense—Equipment		150	
		Accumulated Depreciation—Equipment			150
		To record current depreciation on equipment discarded ($600 × 3/12).			

---

[6] The accounting for the exchange of fixed assets is described and illustrated in the appendix at the end of this chapter.

The discarding of the equipment is then recorded as follows:

Mar.	24	Accumulated Depreciation—Equipment		4,900	
		Loss on Disposal of Equipment		1,100	
		Equipment			6,000
		To write off equipment discarded.			

The loss of $1,100 is recorded because the balance of the accumulated depreciation account ($4,900) is less than the balance in the equipment account ($6,000). Losses on the discarding of fixed assets are nonoperating items and are normally reported in the Other expense section of the income statement.

Selling Fixed Assets

The entry to record the sale of a fixed asset is similar to the entries for discarding an asset. The only difference is that the receipt of cash is also recorded. If the selling price is more than the book value of the asset, a gain is recorded. If the selling price is less than the book value, a loss is recorded.

To illustrate, assume that equipment is purchased at a cost of $10,000 with no estimated residual value and is depreciated at a straight-line rate of 10%. The equipment is sold for cash on October 12 of the eighth year of its use. The balance of the accumulated depreciation account as of the preceding December 31 is $7,000. The entry to update the depreciation for the nine months of the current year is as follows:

Oct.	12	Depreciation Expense—Equipment		750	
		Accumulated Depreciation—Equipment			750
		To record current depreciation on			
		equipment sold ($10,000 × 9/12 × 10%).			

After the current depreciation is recorded, the book value of the asset is $2,250 ($10,000 – $7,750). The entries to record the sale, assuming three different selling prices, are as follows:

Sold at book value, for $2,250. No gain or loss.

Oct.	12	Cash		2,250	
		Accumulated Depreciation—Equipment		7,750	
		Equipment			10,000

Sold below book value, for $1,000. Loss of $1,250.

Oct.	12	Cash		1,000	
		Accumulated Depreciation—Equipment		7,750	
		Loss on Sale of Equipment		1,250	
		Equipment			10,000

Sold above book value, for $2,800. Gain of $550.

Oct.	12	Cash		2,800	
		Accumulated Depreciation—Equipment		7,750	
		Equipment			10,000
		Gain on Sale of Equipment			550

Example Exercise 10-6 Sale of Equipment

OBJ. 3

Equipment was acquired at the beginning of the year at a cost of $91,000. The equipment was depreciated using the straight-line method based on an estimated useful life of nine years and an estimated residual value of $10,000.

a. What was the depreciation for the first year?

b. Assuming the equipment was sold at the end of the second year for $78,000, determine the gain or loss on sale of the equipment.

c. Journalize the entry to record the sale.

Follow My Example 10-6

a. $9,000 [($91,000 – $10,000)/9]

b. $5,000 gain {$78,000 – [$91,000 – ($9,000 × 2)]}

c.

Cash	78,000	
Accumulated Depreciation—Equipment	18,000	
Equipment		91,000
Gain on Sale of Equipment		5,000

Practice Exercises: **PE 10-6A, PE 10-6B**

Natural Resources

OBJ. 4 Compute depletion and journalize the entry for depletion.

The fixed assets of some companies include timber, metal ores, minerals, or other natural resources. As these resources are harvested or mined and then sold, a portion of their cost is debited to an expense account. This process of transferring the cost of natural resources to an expense account is called **depletion**.

Depletion is determined as follows:[7]

Step 1. Determine the depletion rate as:

$$\text{Depletion Rate} = \frac{\text{Cost of Resource}}{\text{Estimated Total Units of Resource}}$$

Step 2. Multiply the depletion rate by the quantity extracted from the resource during the period.

$$\text{Depletion Expense} = \text{Depletion Rate} \times \text{Quantity Extracted}$$

To illustrate, assume that Karst Company purchased mining rights as follows:

Cost of mineral deposit	$400,000
Estimated total units of resource	1,000,000 tons
Tons mined during year	90,000 tons

The depletion expense of $36,000 for the year is computed, as shown below.

Step 1.

$$\text{Depletion Rate} = \frac{\text{Cost of Resource}}{\text{Estimated Total Units of Resource}} = \frac{\$400{,}000}{1{,}000{,}000\ \text{Tons}} = \$0.40\ \text{per Ton}$$

Step 2.

$$\text{Depletion Expense} = \$0.40\ \text{per Ton} \times 90{,}000\ \text{Tons} = \$36{,}000$$

The adjusting entry to record the depletion is shown below.

Dec.	31	Depletion Expense		36,000	
		Accumulated Depletion			36,000
		Depletion of mineral deposit.			

---

[7] We assume that there is no significant residual value left after all the natural resource is extracted.

Like the accumulated depreciation account, Accumulated Depletion is a *contra asset* account. It is reported on the balance sheet as a deduction from the cost of the mineral deposit.

Example Exercise 10-7 Depletion

OBJ 4

Earth's Treasures Mining Co. acquired mineral rights for $45,000,000. The mineral deposit is estimated at 50,000,000 tons. During the current year, 12,600,000 tons were mined and sold.

a. Determine the depletion rate.
b. Determine the amount of depletion expense for the current year.
c. Journalize the adjusting entry on December 31 to recognize the depletion expense.

Follow My Example 10-7

a. $0.90 per ton ($45,000,000/50,000,000 tons)
b. $11,340,000 (12,600,000 tons × $0.90 per ton)

c.	Dec. 31	Depletion Expense	11,340,000	
		Accumulated Depreciation		11,340,000
		Depletion of mineral deposit.		

Practice Exercises: **PE 10-7A, PE 10-7B**

OBJ 5 Describe the accounting for intangible assets, such as patents, copyrights, and goodwill.

Intangible Assets

Patents, copyrights, trademarks, and goodwill are long-lived assets that are used in the operations of a business and are not held for sale. These assets are called **intangible assets** because they do not exist physically.

The accounting for intangible assets is similar to that for fixed assets. The major issues are:

IFRS **IFRS**

See Appendix D for more information

1. Determining the initial cost.
2. Determining the **amortization**, which is the amount of cost to transfer to expense.

Amortization results from the passage of time or a decline in the usefulness of the intangible asset.

Patents

Manufacturers may acquire exclusive rights to produce and sell goods with one or more unique features. Such rights are granted by **patents,** which the federal government issues to inventors. These rights continue in effect for 20 years. A business may purchase patent rights from others, or it may obtain patents developed by its own research and development.

The initial cost of a purchased patent, including any legal fees, is debited to an asset account. This cost is written off, or amortized, over the years of the patent's expected useful life. The expected useful life of a patent may be less than its legal life. For example, a patent may become worthless due to changing technology or consumer tastes.

Patent amortization is normally computed using the straight-line method. The amortization is recorded by debiting an amortization expense account and crediting the patents account. A separate contra asset account is usually *not* used for intangible assets.

To illustrate, assume that at the beginning of its fiscal year, a company acquires patent rights for $100,000. Although the patent will not expire for 14 years, its remaining useful life is estimated as five years. The adjusting entry to amortize the patent at the end of the year is as follows:

Dec.	31	Amortization Expense—Patents		20,000	
		Patents			20,000
		Patent amortization ($100,000/5).			

Some companies develop their own patents through research and development. In such cases, any *research and development costs* are usually recorded as current operating expenses in the period in which they are incurred. This accounting for research and development costs is justified on the basis that any future benefits from research and development are highly uncertain.

International Connection

INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS)

IFRS allow certain research and development (R&D) costs to be recorded as assets when incurred. Typically, R&D costs are classified as either research costs or development costs. If certain criteria are met, research costs can be recorded as an expense, while development costs can be recorded as an asset. This criterion includes such considerations as the company's intent to use or to sell the intangible asset. For example, Nokia Corporation (Finland) reported capitalized development costs of €143 million on its December 31, 2009, statement of financial position (balance sheet), where € represents the euro, the common currency of the European Economic Union.*

*Differences between U.S. GAAP and IFRS are further discussed and illustrated in Appendix D.

Copyrights and Trademarks

The exclusive right to publish and sell a literary, artistic, or musical composition is granted by a **copyright**. Copyrights are issued by the federal government and extend for 70 years beyond the author's death. The costs of a copyright include all costs of creating the work plus any other costs of obtaining the copyright. A copyright that is purchased is recorded at the price paid for it. Copyrights are amortized over their estimated useful lives.

A **trademark** is a name, term, or symbol used to identify a business and its products. Most businesses identify their trademarks with ® in their advertisements and on their products.

Under federal law, businesses can protect their trademarks by registering them for 10 years and renewing the registration for 10-year periods. Like a copyright, the legal costs of registering a trademark are recorded as an asset.

If a trademark is purchased from another business, its cost is recorded as an asset. In such cases, the cost of the trademark is considered to have an indefinite useful life. Thus, trademarks are not amortized. Instead, trademarks are reviewed periodically for impaired value. When a trademark is impaired, the trademark should be written down and a loss recognized.

Goodwill

Goodwill refers to an intangible asset of a business that is created from such favorable factors as location, product quality, reputation, and managerial skill. Goodwill allows a business to earn a greater rate of return than normal.

Generally accepted accounting principles (GAAP) allow goodwill to be recorded only if it is objectively determined by a transaction. An example of such a transaction is the purchase of a business at a price in excess of the fair value of its net assets (assets − liabilities). The excess is recorded as goodwill and reported as an intangible asset.

Unlike patents and copyrights, goodwill is not amortized. However, a loss should be recorded if the future prospects of the purchased firm become impaired. This loss would normally be disclosed in the Other expense section of the income statement.

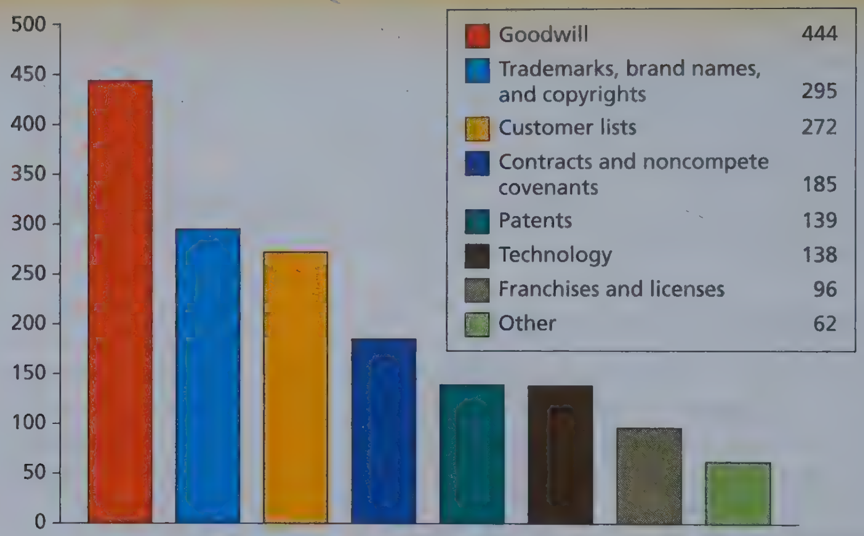
To illustrate, assume that on December 31 FaceCard Company has determined that $250,000 of the goodwill created from the purchase of Electronic Systems is impaired. The entry to record the impairment is as follows:

Dec.	31	Loss from Impaired Goodwill		250,000	
		Goodwill			250,000
		Impaired goodwill.			

Exhibit 9 shows intangible asset disclosures for 500 large firms. Goodwill is the most often reported intangible asset. This is because goodwill arises from merger transactions, which are common.

EXHIBIT 9

Frequency of Intangible Asset Disclosures for 500 Firms



Source: *Accounting Trends & Techniques*, 63rd ed., American Institute of Certified Public Accountants, New York, 2009.
Note: Some firms have multiple disclosures.

Exhibit 10 summarizes the characteristics of intangible assets.

EXHIBIT 10

Comparison of Intangible Assets

Intangible Asset	Description	Amortization Period	Periodic Expense
Patent	Exclusive right to benefit from an innovation.	Estimated useful life not to exceed legal life.	Amortization expense.
Copyright	Exclusive right to benefit from a literary, artistic, or musical composition.	Estimated useful life not to exceed legal life.	Amortization expense.
Trademark	Exclusive use of a name, term, or symbol.	None	Impairment loss if fair value less than carrying value (impaired).
Goodwill	Excess of purchase price of a business over the fair value of its net assets (assets − liabilities).	None	Impairment loss if fair value less than carrying value (impaired).

Example Exercise 10-8 Impaired Goodwill and Amortization of Patent

OBJ. 5

On December 31, it was estimated that goodwill of $40,000 was impaired. In addition, a patent with an estimated useful economic life of 12 years was acquired for $84,000 on July 1.

a. Journalize the adjusting entry on December 31 for the impaired goodwill.

b. Journalize the adjusting entry on December 31 for the amortization of the patent rights.

Follow My Example 10-8

a.	Dec. 31	Loss from Impaired Goodwill	40,000	
		Goodwill		40,000
		Impaired goodwill.		
b.	Dec. 31	Amortization Expense—Patents	3,500	
		Patents		3,500
		Amortized patent rights [($84,000/12) × (6/12)].		

Practice Exercises: **PE 10-8A, PE 10-8B**

Financial Reporting for Fixed Assets and Intangible Assets

OBJ. 6 Describe how depreciation expense is reported in an income statement and prepare a balance sheet that includes fixed assets and intangible assets.

In the income statement, depreciation and amortization expense should be reported separately or disclosed in a note. A description of the methods used in computing depreciation should also be reported.

In the balance sheet, each class of fixed assets should be disclosed on the face of the statement or in the notes. The related accumulated depreciation should also be disclosed, either by class or in total. The fixed assets may be shown at their *book value* (cost less accumulated depreciation), which can also be described as their *net* amount.

If there are many classes of fixed assets, a single amount may be presented in the balance sheet, supported by a note with a separate listing. Fixed assets may be reported under the more descriptive caption of property, plant, and equipment.

Intangible assets are usually reported in the balance sheet in a separate section following fixed assets. The balance of each class of intangible assets should be disclosed net of any amortization.

The balance sheet presentation for Mornin' Joe's fixed and intangible assets is shown below.

Mornin' Joe
Balance Sheet
December 31, 2012

Property, plant, and equipment:			
Land		$1,850,000	
Buildings	$2,650,000		
Less accumulated depreciation	420,000	2,230,000	
Office equipment	$ 350,000		
Less accumulated depreciation	102,000	248,000	
Total property, plant, and equipment			$4,328,000
Intangible assets:			
Patents			140,000

The cost and related accumulated depletion of mineral rights are normally shown as part of the Fixed Assets section of the balance sheet. The mineral rights may be shown net of depletion on the face of the balance sheet. In such cases, a supporting note discloses the accumulated depletion.

F·A·I

Financial Analysis and Interpretation: Fixed Asset Turnover Ratio

7 Describe and illustrate the fixed asset turnover ratio to assess the efficiency of a company's use of its fixed assets.

A measure of a company's efficiency in using its fixed assets to generate revenue is the fixed asset turnover ratio. The **fixed asset turnover ratio** measures the number of dollars of sales earned per dollar of fixed assets. It is computed as follows:

$$\text{Fixed Asset Turnover Ratio} = \frac{\text{Net Sales}}{\text{Average Book Value of Fixed Assets}}$$

To illustrate, the following data (in millions) are used for **Starbucks Corp.**

	Sept. 27, 2009	Sept. 28, 2008
Net sales	$9,775	$10,383
Fixed assets (net):		
Beginning of year	2,956	2,890
End of year	2,536	2,956

Starbucks' fixed asset turnover ratios for 2009 and 2008 are computed as follows:

	2009	2008
Net sales	$9,775	$10,383
Average fixed assets	$2,746 [($2,536 + $2,956) ÷ 2]	$ 2,923 [($2,956 + $2,890) ÷ 2]
Fixed asset turnover ratio	3.56 ($9,775 ÷ $2,746)	3.55 ($10,383 ÷ $2,923)

Business Connection

HUB-AND-SPOKE OR POINT-TO-POINT?

Southwest Airlines Co. uses a simple fare structure, featuring low, unrestricted, unlimited, everyday coach fares. These fares are made possible by Southwest's use of a point-to-point, rather than a hub-and-spoke, business approach.

United Airlines, Inc., **Delta Air Lines**, and **American Airlines** employ a hub-and-spoke approach in which an airline establishes major hubs that serve as connecting links to other cities. For example, Delta has major connecting hubs in Atlanta and Salt Lake City.

In contrast, Southwest focuses on nonstop, point-to-point service between selected cities. As a result, Southwest minimizes connections, delays, and total trip time. This operating approach permits Southwest to achieve high utilization of its fixed assets, such as its 737 aircraft.

© AP Photo/Matt Slocum

The higher the fixed asset turnover, the more efficiently a company is using its fixed assets in generating sales. For example, in 2009 Starbucks earned $3.56 of sales for every dollar of fixed assets, which is slightly more than $3.55 of sales for every dollar of fixed assets it earned in 2008. Thus, Starbucks used its fixed assets slightly more efficiently in 2009.

As illustrated above, the fixed asset turnover ratio can be compared across time for a single company. In addition, the ratio can be compared across companies. For example, the fixed asset turnover ratio for a number of different companies and industries is shown below.

Company (industry)	Fixed Asset Turnover Ratio
Comcast Corporation (cable)	1.43
Google (Internet)	4.70
Manpower Inc. (temporary employment)	99.32
Norfolk Southern Corporation (railroad)	0.49
Ruby Tuesday, Inc. (restaurant)	1.20
Southwest Airlines Co. (airline)	1.01

The smaller ratios are associated with companies that require large fixed asset investments. The larger fixed asset turnover ratios are associated with firms that are more labor-intensive and require smaller fixed asset investments.

Example Exercise 10-9 Fixed Asset Turnover Ratio

OBJ. 7

Financial statement data for years ending December 31 for Broadwater Company are shown below.

	2012	2011
Net sales	$2,862,000	$2,025,000
Fixed assets:		
Beginning of year	750,000	600,000
End of year	840,000	750,000

a. Determine the fixed asset turnover ratio for 2012 and 2011.

b. Does the change in the fixed asset turnover ratio from 2011 to 2012 indicate a favorable or an unfavorable trend?

Follow My Example 10-9

a. Fixed asset turnover:

	2012	2011
Net sales	$2,862,000	$2,025,000
Fixed assets:		
Beginning of year	$750,000	$600,000
End of year	$840,000	$750,000
Average fixed assets	$795,000	$675,000
	[($750,000 + $840,000) ÷ 2]	[($600,000 + $750,000) ÷ 2]
Fixed asset turnover	3.6	3.0
	($2,862,000 ÷ $795,000)	($2,025,000 ÷ $675,000)

b. The increase in the fixed asset turnover ratio from 3.0 to 3.6 indicates a favorable trend in the efficiency of using fixed assets to generate sales.

Practice Exercises: **PE 10-9A, PE 10-9B**

APPENDIX

Exchanging Similar Fixed Assets

Old equipment is often traded in for new equipment having a similar use. In such cases, the seller allows the buyer an amount for the old equipment traded in. This amount, called the **trade-in allowance**, may be either greater or less than the book value of the old equipment. The remaining balance—the amount owed—is either paid in cash or recorded as a liability. It is normally called **boot**, which is its tax name.

Accounting for the exchange of similar assets depends on whether the transaction has *commercial substance.*[8] An exchange has commercial substance if future cash flows change as a result of the exchange. If an exchange of similar assets has commercial substance, a gain or loss is recognized based on the difference between the book value of the asset given up (exchanged) and the fair market value of the asset received. In such cases, the exchange is accounted for similar to that of a sale of a fixed asset.

Gain on Exchange

To illustrate a gain on an exchange of similar assets, assume the following:

Similar equipment acquired (new):	
Price (fair market value) of new equipment	$5,000
Trade-in allowance on old equipment	1,100
Cash paid at June 19, date of exchange	$3,900

Equipment traded in (old):	
Cost of old equipment	$4,000
Accumulated depreciation at date of exchange	3,200
Book value at June 19, date of exchange	$ 800

The entry to record this exchange and payment of cash is as follows:

June 19	Accumulated Depreciation—Equipment	3,200	
	Equipment (new equipment)	5,000	
	Equipment (old equipment)		4,000
	Cash		3,900
	Gain on Exchange of Equipment		300

The gain on the exchange, $300, is the difference between the fair market value of the new asset of $5,000 and the book value of the old asset traded in of $800 plus the cash paid of $3,900 as shown below.

Price (fair market value) of new equipment		$5,000
Less assets given up in exchange:		
Book value of old equipment ($4,000 – $3,200)	$ 800	
Cash paid on the exchange	3,900	4,700
Gain on exchange of assets		$ 300

Loss on Exchange

To illustrate a loss on an exchange of similar assets, assume that instead of a trade-in allowance of $1,100, a trade-in allowance of only $675 was allowed in the preceding example. In this case, the cash paid on the exchange is $4,325 as shown on the next page.

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[8] *FASB Accounting Standards Codification*, Section 360-10-30.

Price (fair market value) of new equipment	$5,000
Trade-in allowance of old equipment	675
Cash paid at June 19, date of exchange	$4,325

The entry to record this exchange and payment of cash is as follows:

June 19	Accumulated Depreciation—Equipment	3,200	
	Equipment (new equipment)	5,000	
	Loss on Exchange of Equipment	125	
	Equipment (old equipment)		4,000
	Cash		4,325

The loss on the exchange, $125, is the difference between the fair market value of the new asset ($5,000) and the book value of the old asset traded in ($800) plus the cash paid ($4,325), as shown below.

Price (fair market value) of new equipment		$5,000
Less assets given up in exchange:		
Book value of old equipment ($4,000 – $3,200)	$ 800	
Cash paid on the exchange	4,325	5,125
Loss on exchange of assets		$ (125)

In those cases where an asset exchange *lacks commercial substance*, no gain is recognized on the exchange. Instead, the cost of the new asset is adjusted for any gain. For example, in the first illustration, the gain of $300 would be subtracted from the purchase price of $5,000 and the new asset would be recorded at $4,700. Accounting for the exchange of assets that lack commercial substance is discussed in more advanced accounting texts.[9]

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[9] The exchange of similar assets also involves complex tax issues which are discussed in advanced accounting courses.

At a Glance 10

OBJ. 1 Define, classify, and account for the cost of fixed assets.

Key Points Fixed assets are long-term tangible assets used in the normal operations of the business such as equipment, buildings, and land. The initial cost of a fixed asset includes all amounts spent to get the asset in place and ready for use. Revenue expenditures include ordinary repairs and maintenance. Capital expenditures include asset improvements and extraordinary repairs.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Define *fixed assets.*		
• List types of costs that should be included in the cost of a fixed asset.		
• Provide examples of ordinary repairs, asset improvements, and extraordinary repairs.		
• Prepare journal entries for ordinary repairs, asset improvements, and extraordinary repairs.	EE10-1	PE10-1A, 10-1B

OBJ. 2 Compute depreciation, using the following methods: straight-line method, units-of- production method, and double-declining-balance method.

Key Points All fixed assets except land should be depreciated over time. Three factors are considered in determining depreciation: (1) the fixed asset's initial cost, (2) the useful life of the asset, and (3) the residual value of the asset.

Depreciation may be determined using the straight-line, units-of-production, and double-declining-balance methods.

Depreciation may be revised into the future for changes in an asset's useful life or residual value.

Learning Outcomes	Example Exercises	Practice Exercises
• Define and describe *depreciation*.		
• List the factors used in determining depreciation.		
• Compute straight-line depreciation.	EE10-2	PE10-2A, 10-2B
• Compute units-of-production depreciation.	EE10-3	PE10-3A, 10-3B
• Compute double-declining-balance depreciation.	EE10-4	PE10-4A, 10-4B
• Compute revised depreciation for a change in an asset's useful life and residual value.	EE10-5	PE10-5A, 10-5B

OBJ. 3 Journalize entries for the disposal of fixed assets.

Key Points When discarding a fixed asset, any depreciation for the current period should be recorded, and the book value of the asset is then removed from the accounts.

When a fixed asset is sold, the book value is removed, and the cash or other asset received is recorded. If the selling price is more than the book value of the asset, the transaction results in a gain. If the selling price is less than the book value, there is a loss.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare the journal entry for discarding a fixed asset.		
• Prepare journal entries for the sale of a fixed asset.	EE10-6	PE10-6A, 10-6B

OBJ. 4 Compute depletion and journalize the entry for depletion.

Key Points The amount of periodic depletion is computed by multiplying the quantity of minerals extracted during the period by a depletion rate. The depletion rate is computed by dividing the cost of the mineral deposit by its estimated total units of resource. The entry to record depletion debits a depletion expense account and credits an accumulated depletion account.

Learning Outcomes	Example Exercises	Practice Exercises
• Define and describe *depletion*.		
• Compute a depletion rate.	EE10-7	PE10-7A, 10-7B
• Prepare the journal entry to record depletion.	EE10-7	PE10-7A, 10-7B

OBJ. 5 Describe the accounting for intangible assets, such as patents, copyrights, and goodwill.

Key Points Long-term assets such as patents, copyrights, trademarks, and goodwill are intangible assets. The cost of patents and copyrights should be amortized over the years of the asset's expected usefulness by debiting an expense account and crediting the intangible asset account. Trademarks and goodwill are not amortized, but are written down only upon impairment.

Learning Outcomes	Example Exercises	Practice Exercises
• Define, describe, and provide examples of intangible assets.		
• Prepare a journal entry for the purchase of an intangible asset.		
• Prepare a journal entry to amortize the costs of patents and copyrights.	EE10-8	PE10-8A, 10-8B
• Prepare the journal entry to record the impairment of goodwill.	EE10-8	PE10-8A, 10-8B

OBJ. 6 Describe how depreciation expense is reported in an income statement and prepare a balance sheet that includes fixed assets and intangible assets.

Key Points The amount of depreciation expense and depreciation methods should be disclosed in the financial statements. Each major class of fixed assets should be disclosed, along with the related accumulated depreciation. Intangible assets are usually presented in a separate section following fixed assets. Each major class of intangible assets should be disclosed net of the amortization recorded to date.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe and illustrate how fixed assets are reported on the income statement and balance sheet.		
• Describe and illustrate how intangible assets are reported on the income statement and balance sheet.		

OBJ. 7 Describe and illustrate the fixed asset turnover ratio to assess the efficiency of a company's use of its fixed assets.

Key Points A measure of a company's efficiency in using its fixed assets to generate sales is the fixed asset turnover ratio. The fixed asset turnover ratio measures the number of dollars of sales earned per dollar of fixed assets and is computed by dividing net sales by the average book value of fixed assets.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe a measure of the efficiency of a company's use of fixed assets to generate revenue.		
• Compute and interpret the fixed asset turnover ratio.	EE10-9	PE10-9A, 10-9B

Key Terms

accelerated depreciation method (453)
amortization (460)
book value (453)
boot (466)
capital expenditures (447)
capital lease (448)
copyright (461)
depletion (459)
depreciation (449)
double-declining-balance method (453)
fixed asset turnover ratio (464)
fixed assets (444)
goodwill (461)
intangible assets (460)
operating lease (448)
patents (460)
residual value (449)
revenue expenditures (447)
straight-line method (450)
trade-in allowance (466)
trademark (461)
units-of-production method (451)

Illustrative Problem

McCollum Company, a furniture wholesaler, acquired new equipment at a cost of $150,000 at the beginning of the fiscal year. The equipment has an estimated life of five years and an estimated residual value of $12,000. Ellen McCollum, the president, has requested information regarding alternative depreciation methods.

Instructions

1. Determine the annual depreciation for each of the five years of estimated useful life of the equipment, the accumulated depreciation at the end of each year, and the book value of the equipment at the end of each year by (a) the straight-line method and (b) the double-declining-balance method.
2. Assume that the equipment was depreciated under the double-declining-balance method. In the first week of the fifth year, the equipment was sold for $10,000. Journalize the entry to record the sale.

Solution

1.

	Year	Depreciation Expense	Accumulated Depreciation, End of Year	Book Value, End of Year
a.	1	$27,600*	$ 27,600	$122,400
	2	27,600	55,200	94,800
	3	27,600	82,800	67,200
	4	27,600	110,400	39,600
	5	27,600	138,000	12,000

*$27,600 = ($150,000 – $12,000) ÷ 5

	Year	Depreciation Expense	Accumulated Depreciation, End of Year	Book Value, End of Year
b.	1	$60,000**	$ 60,000	$ 90,000
	2	36,000	96,000	54,000
	3	21,600	117,600	32,400
	4	12,960	130,560	19,440
	5	7,440***	138,000	12,000

**$60,000 = $150,000 × 40%

***The asset is not depreciated below the estimated residual value of $12,000.
$7,440 = $150,000 – $130,560 – $12,000

2.

		Cash		10,000	
		Accumulated Depreciation—Equipment		130,560	
		Loss on Sale of Equipment		9,440	
		Equipment			150,000

Discussion Questions

1. Arentz Office Supplies has a fleet of automobiles and trucks for use by salespersons and for delivery of office supplies and equipment. Universal Auto Sales Co. has automobiles and trucks for sale. Under what caption would the automobiles and trucks be reported in the balance sheet of (a) Arentz Office Supplies and (b) Universal Auto Sales Co.?
2. Cleanway Co. acquired an adjacent vacant lot with the hope of selling it in the future at a gain. The lot is not intended to be used in Cleanway's business operations. Where should such real estate be listed in the balance sheet?
3. Airy Company solicited bids from several contractors to construct an addition to its office building. The lowest bid received was for $575,000. Airy Company decided to construct the addition itself at a cost of $435,000. What amount should be recorded in the building account?
4. Distinguish between the accounting for capital expenditures and revenue expenditures.
5. Immediately after a used truck is acquired, a new motor is installed at a total cost of $4,150. Is this a capital expenditure or a revenue expenditure?
6. Biggest Company purchased a machine that has a manufacturer's suggested life of 18 years. The company plans to use the machine on a special project that will last 10 years. At the completion of the project, the machine will be sold. Over how many years should the machine be depreciated?
7. Is it necessary for a business to use the same method of computing depreciation (a) for all classes of its depreciable assets and (b) for financial statement purposes and in determining income taxes?
8. a. Under what conditions is the use of an accelerated depreciation method most appropriate?
   b. Why is an accelerated depreciation method often used for income tax purposes?
   c. What is the Modified Accelerated Cost Recovery System (MACRS), and under what conditions is it used?
9. For some of the fixed assets of a business, the balance in Accumulated Depreciation is exactly equal to the cost of the asset. (a) Is it permissible to record additional depreciation on the assets if they are still useful to the business? Explain. (b) When should an entry be made to remove the cost and the accumulated depreciation from the accounts?
10. a. Over what period of time should the cost of a patent acquired by purchase be amortized?
    b. In general, what is the required accounting treatment for research and development costs?
    c. How should goodwill be amortized?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 1 **EE 10-1** *p. 448*

PE 10-1A Capital and revenue expenditures

On September 30, Madison River Inflatables Co. paid $1,425 to install a hydraulic lift and $35 for an air filter for one of its delivery trucks. Journalize the entries for the new lift and air filter expenditures.

OBJ. 1 **EE 10-1** *p. 448*

PE 10-1B Capital and revenue expenditures

On June 9, Martin Associates Co. paid $1,300 to repair the transmission on one of its delivery vans. In addition, Martin Associates paid $600 to install a GPS system in its van. Journalize the entries for the transmission and GPS system expenditures.

OBJ. 2 **EE 10-2** *p. 451*

PE 10-2A Straight-line depreciation

Equipment acquired at the beginning of the year at a cost of $275,000 has an estimated residual value of $30,000 and an estimated useful life of 10 years. Determine (a) the depreciable cost, (b) the straight-line rate, and (c) the annual straight-line depreciation.

OBJ. 2 **EE 10-2** *p. 451*

PE 10-2B Straight-line depreciation

A building acquired at the beginning of the year at a cost of $980,000 has an estimated residual value of $60,000 and an estimated useful life of 20 years. Determine (a) the depreciable cost, (b) the straight-line rate, and (c) the annual straight-line depreciation.

OBJ. 2 **EE 10-3** *p. 452*

PE 10-3A Units-of-production depreciation

A tractor acquired at a cost of $315,000 has an estimated residual value of $27,000, has an estimated useful life of 90,000 hours, and was operated 3,700 hours during the year. Determine (a) the depreciable cost, (b) the depreciation rate, and (c) the units-of-production depreciation for the year.

OBJ. 2 **EE 10-3** *p. 452*

PE 10-3B Units-of-production depreciation

A truck acquired at a cost of $150,000 has an estimated residual value of $40,000, has an estimated useful life of 400,000 miles, and was driven 80,000 miles during the year. Determine (a) the depreciable cost, (b) the depreciation rate, and (c) the units-of-production depreciation for the year.

OBJ. 2 **EE 10-4** *p. 454*

PE 10-4A Double-declining-balance depreciation

Equipment acquired at the beginning of the year at a cost of $190,000 has an estimated residual value of $30,000 and an estimated useful life of eight years. Determine (a) the double-declining-balance rate and (b) the double-declining-balance depreciation for the first year.

OBJ. 2 **EE 10-4** *p. 454*

PE 10-4B Double-declining-balance depreciation

A building acquired at the beginning of the year at a cost of $820,000 has an estimated residual value of $100,000 and an estimated useful life of 50 years. Determine (a) the double-declining-balance rate and (b) the double-declining-balance depreciation for the first year.

Learning Objectives *Example Exercises*

OBJ. 2 **EE 10-5** *p. 457*

PE 10-5A Revision of depreciation

A truck with a cost of $94,000 has an estimated residual value of $20,500, has an estimated useful life of 15 years, and is depreciated by the straight-line method. (a) Determine the amount of the annual depreciation. (b) Determine the book value at the end of the seventh year of use. (c) Assuming that at the start of the eighth year the remaining life is estimated to be six years and the residual value is estimated to be $15,000, determine the depreciation expense for each of the remaining six years.

OBJ. 2 **EE 10-5** *p. 457*

PE 10-5B Revision of depreciation

Equipment with a cost of $300,000 has an estimated residual value of $42,000, has an estimated useful life of 24 years, and is depreciated by the straight-line method. (a) Determine the amount of the annual depreciation. (b) Determine the book value at the end of the fourteenth year of use. (c) Assuming that at the start of the fifteenth year the remaining life is estimated to be five years and the residual value is estimated to be $20,000, determine the depreciation expense for each of the remaining five years.

OBJ. 3 **EE 10-6** *p. 459*

PE 10-6A Sale of equipment

Equipment was acquired at the beginning of the year at a cost of $215,000. The equipment was depreciated using the straight-line method based on an estimated useful life of 18 years and an estimated residual value of $39,500.

a. What was the depreciation for the first year?

b. Assuming the equipment was sold at the end of the eighth year for $128,000, determine the gain or loss on the sale of the equipment.

c. Journalize the entry to record the sale.

OBJ. 3 **EE 10-6** *p. 459*

PE 10-6B Sale of equipment

Equipment was acquired at the beginning of the year at a cost of $450,000. The equipment was depreciated using the double-declining-balance method based on an estimated useful life of 10 years and an estimated residual value of $60,000.

a. What was the depreciation for the first year?

b. Assuming the equipment was sold at the end of the second year for $319,500, determine the gain or loss on the sale of the equipment.

c. Journalize the entry to record the sale.

OBJ. 4 **EE 10-7** *p. 460*

PE 10-7A Depletion

Big Horn Mining Co. acquired mineral rights for $90,000,000. The mineral deposit is estimated at 250,000,000 tons. During the current year, 30,000,000 tons were mined and sold.

a. Determine the depletion rate.

b. Determine the amount of depletion expense for the current year.

c. Journalize the adjusting entry on December 31 to recognize the depletion expense.

OBJ. 4 **EE 10-7** *p. 460*

PE 10-7B Depletion

Silver Tip Mining Co. acquired mineral rights for $300,000,000. The mineral deposit is estimated at 400,000,000 tons. During the current year, 84,000,000 tons were mined and sold.

a. Determine the depletion rate.

b. Determine the amount of depletion expense for the current year.

c. Journalize the adjusting entry on December 31 to recognize the depletion expense.

Learning Objectives *Example Exercises*

OBJ. 5 EE 10-8 *p. 463*

PE 10-8A Impaired goodwill and amortization of patent

On December 31, it was estimated that goodwill of $750,000 was impaired. In addition, a patent with an estimated useful economic life of 18 years was acquired for $864,000 on August 1.

a. Journalize the adjusting entry on December 31 for the impaired goodwill.

b. Journalize the adjusting entry on December 31 for the amortization of the patent rights.

OBJ. 5 EE 10-8 *p. 463*

PE 10-8B Impaired goodwill and amortization of patent

On December 31, it was estimated that goodwill of $1,200,000 was impaired. In addition, a patent with an estimated useful economic life of 12 years was acquired for $288,000 on April 1.

a. Journalize the adjusting entry on December 31 for the impaired goodwill.

b. Journalize the adjusting entry on December 31 for the amortization of the patent rights.

OBJ. 7 EE 10-9 *p. 465*

FAI

PE 10-9A Fixed asset turnover ratio

Financial statement data for years ending December 31 for Winnett Company are shown below.

	2012	2011
Net sales	$3,572,000	$3,526,000
Fixed assets:		
Beginning of year	900,000	820,000
End of year	980,000	900,000

a. Determine the fixed asset turnover ratio for 2012 and 2011.

b. Does the change in the fixed asset turnover ratio from 2011 to 2012 indicate a favorable or an unfavorable trend?

OBJ. 7 EE 10-9 *p. 465*

FAI

PE 10-9B Fixed asset turnover ratio

Financial statement data for years ending December 31 for Fallon Company are shown below.

	2012	2011
Net sales	$740,000	$520,000
Fixed assets:		
Beginning of year	425,000	375,000
End of year	500,000	425,000

a. Determine the fixed asset turnover ratio for 2012 and 2011.

b. Does the change in the fixed asset turnover ratio from 2011 to 2012 indicate a favorable or an unfavorable trend?

Exercises

OBJ. 1

EX 10-1 Costs of acquiring fixed assets

Les Bancroft owns and operates Crown Print Co. During January, Crown Print Co. incurred the following costs in acquiring two printing presses. One printing press was new, and the other was used by a business that recently filed for bankruptcy.

Costs related to new printing press:

1. Sales tax on purchase price
2. Insurance while in transit
3. Freight
4. Special foundation

5. Fee paid to factory representative for installation
6. New parts to replace those damaged in unloading

Costs related to used printing press:

7. Fees paid to attorney to review purchase agreement
8. Freight
9. Installation
10. Replacement of worn-out parts
11. Repair of damage incurred in reconditioning the press
12. Repair of vandalism during installation

a. Indicate which costs incurred in acquiring the new printing press should be debited to the asset account.

b. Indicate which costs incurred in acquiring the used printing press should be debited to the asset account.

OBJ. 1

EX 10-2 Determine cost of land

Alpine Ski Co. has developed a tract of land into a ski resort. The company has cut the trees, cleared and graded the land and hills, and constructed ski lifts. (a) Should the tree cutting, land clearing, and grading costs of constructing the ski slopes be debited to the land account? (b) If such costs are debited to Land, should they be depreciated?

OBJ. 1

✓ $346,600

EX 10-3 Determine cost of land

Discount Delivery Company acquired an adjacent lot to construct a new warehouse, paying $25,000 and giving a short-term note for $300,000. Legal fees paid were $2,100, delinquent taxes assumed were $14,000, and fees paid to remove an old building from the land were $9,000. Materials salvaged from the demolition of the building were sold for $3,500. A contractor was paid $800,000 to construct a new warehouse. Determine the cost of the land to be reported on the balance sheet.

OBJ. 1

EX 10-4 Capital and revenue expenditures

Emerald Lines Co. incurred the following costs related to trucks and vans used in operating its delivery service:

1. Installed security systems on four of the newer trucks.
2. Rebuilt the transmission on one of the vans that had been driven 40,000 miles. The van was no longer under warranty.
3. Installed a hydraulic lift to a van.
4. Replaced a truck's suspension system with a new suspension system that allows for the delivery of heavier loads.
5. Removed a two-way radio from one of the trucks and installed a new radio with a greater range of communication.
6. Repaired a flat tire on one of the vans.
7. Changed the radiator fluid on a truck that had been in service for the past four years.
8. Tinted the back and side windows of one of the vans to discourage theft of contents.
9. Changed the oil and greased the joints of all the trucks and vans.
10. Overhauled the engine on one of the trucks purchased three years ago.

Classify each of the costs as a capital expenditure or a revenue expenditure.

OBJ. 1

EX 10-5 Capital and revenue expenditures

Aubrey Seagars owns and operates Diamond Transport Co. During the past year, Aubrey incurred the following costs related to an 18-wheel truck:

1. Installed a television in the sleeping compartment of the truck.
2. Replaced the old radar detector with a newer model that is fastened to the truck with a locking device that prevents its removal.
3. Installed a wind deflector on top of the cab to increase fuel mileage.
4. Modified the factory-installed turbo charger with a special-order kit designed to add 50 more horsepower to the engine performance.
5. Replaced a headlight that had burned out.
6. Replaced the hydraulic brake system that had begun to fail during his latest trip through the Rocky Mountains.
7. Changed engine oil.
8. Replaced a shock absorber that had worn out.
9. Replaced fog and cab light bulbs.
10. Removed the old CB radio and replaced it with a newer model with a greater range.

Classify each of the costs as a capital expenditure or a revenue expenditure.

OBJ. 1

EX 10-6 Capital and revenue expenditures

Reliable Move Company made the following expenditures on one of its delivery trucks:

Feb. 4. Replaced transmission at a cost of $4,300.
May 6. Paid $1,900 for installation of a hydraulic lift.
Sept. 10. Paid $60 to change the oil and air filter.

Prepare journal entries for each expenditure.

OBJ. 2

EX 10-7 Nature of depreciation

Butte Ironworks Co. reported $7,500,000 for equipment and $6,175,000 for accumulated depreciation—equipment on its balance sheet.

Does this mean (a) that the replacement cost of the equipment is $7,500,000 and (b) that $6,175,000 is set aside in a special fund for the replacement of the equipment? Explain.

OBJ. 2
✔ c. 10%

EX 10-8 Straight-line depreciation rates

Convert each of the following estimates of useful life to a straight-line depreciation rate, stated as a percentage: (a) 4 years, (b) 8 years, (c) 10 years, (d) 16 years, (e) 25 years, (f) 40 years, (g) 50 years.

OBJ. 2
✔ $6,625

EX 10-9 Straight-line depreciation

A refrigerator used by a meat processor has a cost of $120,000, an estimated residual value of $14,000, and an estimated useful life of 16 years. What is the amount of the annual depreciation computed by the straight-line method?

OBJ. 2
✔ $518

EX 10-10 Depreciation by units-of-production method

A diesel-powered tractor with a cost of $185,000 and estimated residual value of $37,000 is expected to have a useful operating life of 40,000 hours. During February, the generator was operated 140 hours. Determine the depreciation for the month.

OBJ. 2

✓ a. Truck #1, credit Accumulated Depreciation, $5,850

EX 10-11 Depreciation by units-of-production method

Prior to adjustment at the end of the year, the balance in Trucks is $275,900 and the balance in Accumulated Depreciation—Trucks is $91,350. Details of the subsidiary ledger are as follows:

Truck No.	Cost	Estimated Residual Value	Estimated Useful Life	Accumulated Depreciation at Beginning of Year	Miles Operated During Year
1	$75,000	$15,000	200,000 miles	—	19,500 miles
2	38,000	3,000	200,000	$ 8,050	36,000
3	72,900	9,900	300,000	60,900	25,000
4	90,000	20,000	250,000	22,400	26,000

a. Determine the depreciation rates per mile and the amount to be credited to the accumulated depreciation section of each of the subsidiary accounts for the miles operated during the current year.

b. Journalize the entry to record depreciation for the year.

OBJ. 2

✓ a. $3,200

EX 10-12 Depreciation by two methods

A Kubota tractor acquired on January 9 at a cost of $80,000 has an estimated useful life of 25 years. Assuming that it will have no residual value, determine the depreciation for each of the first two years (a) by the straight-line method and (b) by the double-declining-balance method.

OBJ. 2

✓ a. $18,375

EX 10-13 Depreciation by two methods

A storage tank acquired at the beginning of the fiscal year at a cost of $344,000 has an estimated residual value of $50,000 and an estimated useful life of 16 years. Determine the following: (a) the amount of annual depreciation by the straight-line method and (b) the amount of depreciation for the first and second years computed by the double-declining-balance method.

OBJ. 2

✓ a. First year, $5,625

EX 10-14 Partial-year depreciation

Sandblasting equipment acquired at a cost of $64,000 has an estimated residual value of $4,000 and an estimated useful life of eight years. It was placed in service on April 1 of the current fiscal year, which ends on December 31. Determine the depreciation for the current fiscal year and for the following fiscal year by (a) the straight-line method and (b) the double-declining-balance method.

OBJ. 2

✓ a. $16,250

EX 10-15 Revision of depreciation

A building with a cost of $900,000 has an estimated residual value of $250,000, has an estimated useful life of 40 years, and is depreciated by the straight-line method. (a) What is the amount of the annual depreciation? (b) What is the book value at the end of the twenty-fourth year of use? (c) If at the start of the twenty-fifth year it is estimated that the remaining life is nine years and that the residual value is $240,000, what is the depreciation expense for each of the remaining nine years?

OBJ. 1, 2

✓ b. Depreciation Expense, $625

EX 10-16 Capital expenditure and depreciation

Viking Company purchased and installed carpet in its new general offices on June 30 for a total cost of $15,000. The carpet is estimated to have a 12-year useful life and no residual value.

a. Prepare the journal entries necessary for recording the purchase of the new carpet.

b. Record the December 31 adjusting entry for the partial-year depreciation expense for the carpet, assuming that Viking Company uses the straight-line method.

OBJ. 3

EX 10-17 Entries for sale of fixed asset

Equipment acquired on January 5, 2009, at a cost of $380,000, has an estimated useful life of 16 years, has an estimated residual value of $40,000, and is depreciated by the straight-line method.

a. What was the book value of the equipment at December 31, 2012, the end of the year?

b. Assuming that the equipment was sold on July 1, 2013, for $270,000, journalize the entries to record (1) depreciation for the six months until the sale date, and (2) the sale of the equipment.

OBJ. 3

✓ b. $305,000

EX 10-18 Disposal of fixed asset

Equipment acquired on January 4, 2009, at a cost of $425,000, has an estimated useful life of nine years and an estimated residual value of $65,000.

a. What was the annual amount of depreciation for the years 2009, 2010, and 2011, using the straight-line method of depreciation?

b. What was the book value of the equipment on January 1, 2012?

c. Assuming that the equipment was sold on January 9, 2012, for $290,000, journalize the entry to record the sale.

d. Assuming that the equipment had been sold on January 9, 2012, for $310,000 instead of $290,000, journalize the entry to record the sale.

OBJ. 4

✓ a. $3,000,000

EX 10-19 Depletion entries

Ashwood Mining Co. acquired mineral rights for $15,000,000. The mineral deposit is estimated at 120,000,000 tons. During the current year, 24,000,000 tons were mined and sold.

a. Determine the amount of depletion expense for the current year.

b. Journalize the adjusting entry to recognize the depletion expense.

OBJ. 5

✓ a. $33,000

EX 10-20 Amortization entries

Greenleaf Company acquired patent rights on January 6, 2009, for $300,000. The patent has a useful life equal to its legal life of 12 years. On January 3, 2012, Greenleaf successfully defended the patent in a lawsuit at a cost of $72,000.

a. Determine the patent amortization expense for the current year ended December 31, 2012.

b. Journalize the adjusting entry to recognize the amortization.

OBJ. 6

EX 10-21 Book value of fixed assets

Apple Computer, Inc., designs, manufactures, and markets personal computers and related software. Apple also manufactures and distributes music players (iPod) and mobile phones (iPhone) along with related accessories and services including online distribution of third-party music, videos, and applications. The following information was taken from a recent annual report of Apple:

Property, Plant, and Equipment (in millions):

	Current Year	Preceding Year
Land and buildings	$ 955	$ 810
Machinery, equipment, and internal-use software	1,932	1,491
Office furniture and equipment	115	122
Other fixed assets related to leases	1,665	1,324
Accumulated depreciation and amortization	1,713	1,292

a. Compute the book value of the fixed assets for the current year and the preceding year and explain the differences, if any.

b. Would you normally expect the book value of fixed assets to increase or decrease during the year?

OBJ. 6

EX 10-22 Balance sheet presentation

List the errors you find in the following partial balance sheet:

Contours Company
Balance Sheet
December 31, 2012

Assets

Total current assets				$350,000

	Replacement Cost	Accumulated Depreciation	Book Value	
Property, plant, and equipment:				
Land	$100,000	$ 25,000	$ 75,000	
Buildings	256,000	90,000	166,000	
Factory equipment	297,000	110,000	187,000	
Office equipment	72,000	48,000	24,000	
Patents	48,000	—	48,000	
Goodwill	27,000	7,000	20,000	
Total property, plant, and equipment	$800,000	$280,000		$520,000

OBJ. 7

FAI

EX 10-23 Fixed asset turnover ratio

Verizon Communications is a major telecommunications company in the United States. Verizon's balance sheet disclosed the following information regarding fixed assets:

	Dec. 31, 2009 (in millions)	Dec. 31, 2008 (in millions)
Plant, property, and equipment	$228,518	$215,605
Less accumulated depreciation	137,052	129,059
	$ 91,466	$ 86,546

Verizon's revenue for 2009 was $107,808 million. The fixed asset turnover for the telecommunications industry averages 1.10.

a. Determine Verizon's fixed asset turnover ratio. Round to two decimal places.

b. Interpret Verizon's fixed asset turnover ratio.

OBJ. 7

FAI

EX 10-24 Fixed asset turnover ratio

The following table shows the revenue and average net fixed assets (in millions) for a recent fiscal year for Best Buy and RadioShack:

	Revenue	Average Net Fixed Assets
Best Buy	$45,015	$3,740
RadioShack	4,225	312

a. Compute the fixed asset turnover for each company. Round to two decimal places.

b. Which company uses its fixed assets more efficiently? Explain.

✓ a. $225,000

Appendix
EX 10-25 Asset traded for similar asset

A printing press priced at a fair market value of $400,000 is acquired in a transaction that has commercial substance by trading in a similar press and paying cash for the difference between the trade-in allowance and the price of the new press.

a. Assuming that the trade-in allowance is $175,000, what is the amount of cash given?

b. Assuming that the book value of the press traded in is $160,000, what is the gain or loss on the exchange?

✔ b. $10,000 loss

Appendix
EX 10-26 Asset traded for similar asset

Assume the same facts as in Exercise 10-25, except that the book value of the press traded in is $185,000. (a) What is the amount of cash given? (b) What is the gain or loss on the exchange?

Appendix
EX 10-27 Entries for trade of fixed asset

On April 1, Clear Water Co., a water distiller, acquired new bottling equipment with a list price (fair market value) of $350,000. Clear Water received a trade-in allowance of $50,000 on the old equipment of a similar type and paid cash of $300,000. The following information about the old equipment is obtained from the account in the equipment ledger: cost, $280,000; accumulated depreciation on December 31, the end of the preceding fiscal year, $216,000; annual depreciation, $18,000. Assuming the exchange has commercial substance, journalize the entries to record (a) the current depreciation of the old equipment to the date of trade-in and (b) the exchange transaction on April 1.

Appendix
EX 10-28 Entries for trade of fixed asset

On July 1, Potts Delivery Services acquired a new truck with a list price (fair market value) of $80,000. Potts received a trade-in allowance of $15,000 on an old truck of similar type and paid cash of $65,000. The following information about the old truck is obtained from the account in the equipment ledger: cost, $60,000; accumulated depreciation on December 31, the end of the preceding fiscal year, $42,000; annual depreciation, $7,500. Assuming the exchange has commercial substance, journalize the entries to record (a) the current depreciation of the old truck to the date of trade-in and (b) the transaction on July 1.

Problems Series A

OBJ. 1

✔ Land, $402,500

PR 10-1A Allocate payments and receipts to fixed asset accounts

The following payments and receipts are related to land, land improvements, and buildings acquired for use in a wholesale ceramic business. The receipts are identified by an asterisk.

a.	Fee paid to attorney for title search	$ 3,000
b.	Cost of real estate acquired as a plant site: Land	320,000
	Building	30,000
c.	Special assessment paid to city for extension of water main to the property	18,000
d.	Cost of razing and removing building	5,000
e.	Proceeds from sale of salvage materials from old building	3,000*
f.	Delinquent real estate taxes on property, assumed by purchaser	12,000
g.	Premium on one-year insurance policy during construction	4,200
h.	Cost of filling and grading land	17,500
i.	Architect's and engineer's fees for plans and supervision	44,000
j.	Money borrowed to pay building contractor	750,000*
k.	Cost of repairing windstorm damage during construction	5,500
l.	Cost of paving parking lot to be used by customers	15,000
m.	Cost of trees and shrubbery planted	9,000
n.	Cost of floodlights installed on parking lot	1,000
o.	Cost of repairing vandalism damage during construction	2,500
p.	Proceeds from insurance company for windstorm and vandalism damage	6,000*
q.	Payment to building contractor for new building	800,000
r.	Interest incurred on building loan during construction	37,500
s.	Refund of premium on insurance policy (g) canceled after 11 months	350*

Instructions

1. Assign each payment and receipt to Land (unlimited life), Land Improvements (limited life), Building, or Other Accounts. Indicate receipts by an asterisk. Identify each item by letter and list the amounts in columnar form, as follows:

Item	Land	Land Improvements	Building	Other Accounts

2. Determine the amount debited to Land, Land Improvements, and Building.
3. The costs assigned to the land, which is used as a plant site, will not be depreciated, while the costs assigned to land improvements will be depreciated. Explain this seemingly contradictory application of the concept of depreciation.
4. What would be the effect on the income statement and balance sheet if the cost of filling and grading land of $17,500 [payment (h)] was incorrectly classified as Land Improvements rather than Land? Assume Land Improvements are depreciated over a 20-year life using the double-declining-balance method.

OBJ. 2

✓ a. 2010: straight-line depreciation, $31,250

PR 10-2A Compare three depreciation methods

Breyer Company purchased packaging equipment on January 3, 2010, for $101,250. The equipment was expected to have a useful life of three years, or 25,000 operating hours, and a residual value of $7,500. The equipment was used for 9,500 hours during 2010, 8,400 hours in 2011, and 7,100 hours in 2012.

Instructions

1. Determine the amount of depreciation expense for the years ended December 31, 2010, 2011, and 2012, by (a) the straight-line method, (b) the units-of-production method, and (c) the double-declining-balance method. Also determine the total depreciation expense for the three years by each method. The following columnar headings are suggested for recording the depreciation expense amounts:

	Depreciation Expense		
Year	Straight-Line Method	Units-of-Production Method	Double-Declining-Balance Method

2. What method yields the highest depreciation expense for 2010?
3. What method yields the most depreciation over the three–year life of the equipment?

OBJ. 2

✓ a. 2010: $21,500

PR 10-3A Depreciation by three methods; partial years

Security IDs Company purchased equipment on July 1, 2010, for $135,000. The equipment was expected to have a useful life of three years, or 12,000 operating hours, and a residual value of $6,000. The equipment was used for 1,500 hours during 2010, 3,500 hours in 2011, 5,000 hours in 2012, and 2,000 hours in 2013.

Instructions

Determine the amount of depreciation expense for the years ended December 31, 2010, 2011, 2012, and 2013, by (a) the straight-line method, (b) the units-of-production method, and (c) the double-declining-balance method. Round to the nearest dollar.

OBJ. 2, 3

✓ b. Year 1: $315,000 depreciation expense

PR 10-4A Depreciation by two methods; sale of fixed asset

New lithographic equipment, acquired at a cost of $787,500 at the beginning of a fiscal year, has an estimated useful life of five years and an estimated residual value of $67,500. The manager requested information regarding the effect of alternative methods on the amount of depreciation expense each year. On the basis of the data presented to the manager, the double-declining-balance method was selected.

In the first week of the fifth year, the equipment was sold for $115,000.

Instructions

1. Determine the annual depreciation expense for each of the estimated five years of use, the accumulated depreciation at the end of each year, and the book value of the equipment at the end of each year by (a) the straight-line method and (b) the

(Continued)

double-declining-balance method. The following columnar headings are suggested for each schedule:

Year	Depreciation Expense	Accumulated Depreciation, End of Year	Book Value, End of Year

2. Journalize the entry to record the sale.
3. Journalize the entry to record the sale, assuming that the equipment was sold for $98,900 instead of $115,000.

OBJ. 1, 2, 3

PR 10-5A Transactions for fixed assets, including sale

The following transactions, adjusting entries, and closing entries were completed by D. Hurd Furniture Co. during a three-year period. All are related to the use of delivery equipment. The double-declining-balance method of depreciation is used.

2010

Jan. 9. Purchased a used delivery truck for $30,000, paying cash.

Mar. 17. Paid garage $400 for miscellaneous repairs to the truck.

Dec. 31. Recorded depreciation on the truck for the year. The estimated useful life of the truck is four years, with a residual value of $6,000 for the truck.

2011

Jan. 2. Purchased a new truck for $48,000, paying cash.

Aug 1. Sold the used truck for $12,500. (Record depreciation to date in 2011 for the truck.)

Sept. 23. Paid garage $325 for miscellaneous repairs to the truck.

Dec. 31. Record depreciation for the new truck. It has an estimated residual value of $11,000 and an estimated life of five years.

2012

July 1. Purchased a new truck for $52,000, paying cash.

Oct. 2. Sold the truck purchased January 2, 2011, for $17,000. (Record depreciation for the year.)

Dec. 31. Recorded depreciation on the remaining truck. It has an estimated residual value of $14,000 and an estimated useful life of eight years.

Instructions

Journalize the transactions and the adjusting entries.

OBJ. 4, 5

✔ 1. a. $360,000

PR 10-6A Amortization and depletion entries

Data related to the acquisition of timber rights and intangible assets during the current year ended December 31 are as follows:

a. Timber rights on a tract of land were purchased for $864,000 on July 10. The stand of timber is estimated at 3,600,000 board feet. During the current year, 1,500,000 board feet of timber were cut and sold.

b. On December 31, the company determined that $4,000,000 of goodwill was impaired.

c. Governmental and legal costs of $1,170,000 were incurred on April 10 in obtaining a patent with an estimated economic life of 12 years. Amortization is to be for three-fourths of a year.

Instructions

1. Determine the amount of the amortization, depletion, or impairment for the current year for each of the foregoing items.
2. Journalize the adjusting entries required to record the amortization, depletion, or impairment for each item.

Problems Series B

OBJ. 1

✔ Land, $597,500

PR 10-1B Allocate payments and receipts to fixed asset accounts

The following payments and receipts are related to land, land improvements, and buildings acquired for use in a wholesale apparel business. The receipts are identified by an asterisk.

a.	Finder's fee paid to real estate agency	$ 5,000
b.	Cost of real estate acquired as a plant site: Land	500,000
	Building	40,000
c.	Fee paid to attorney for title search	2,500
d.	Delinquent real estate taxes on property, assumed by purchaser	15,000
e.	Architect's and engineer's fees for plans and supervision	36,000
f.	Cost of removing building purchased with land in (b)	10,000
g.	Proceeds from sale of salvage materials from old building	4,000*
h.	Cost of filling and grading land	20,000
i.	Premium on one-year insurance policy during construction	6,000
j.	Money borrowed to pay building contractor	750,000*
k.	Special assessment paid to city for extension of water main to the property	9,000
l.	Cost of repairing windstorm damage during construction	3,000
m.	Cost of repairing vandalism damage during construction	2,000
n.	Cost of trees and shrubbery planted	12,000
o.	Cost of paving parking lot to be used by customers	14,500
p.	Interest incurred on building loan during construction	45,000
q.	Proceeds from insurance company for windstorm and vandalism damage	3,000*
r.	Payment to building contractor for new building	800,000
s.	Refund of premium on insurance policy (i) canceled after 10 months	1,000*

Instructions

1. Assign each payment and receipt to Land (unlimited life), Land Improvements (limited life), Building, or Other Accounts. Indicate receipts by an asterisk. Identify each item by letter and list the amounts in columnar form, as follows:

Item	Land	Land Improvements	Building	Other Accounts

2. Determine the amount debited to Land, Land Improvements, and Building.
3. The costs assigned to the land, which is used as a plant site, will not be depreciated, while the costs assigned to land improvements will be depreciated. Explain this seemingly contradictory application of the concept of depreciation.
4. What would be the effect on the income statement and balance sheet if the cost of paving the parking lot of $14,500 [payment (o)] was incorrectly classified as Land rather than Land Improvements? Assume Land Improvements are depreciated over a 10-year life using the double-declining-balance method.

OBJ. 2

✔ a. 2011: straight-line depreciation, $100,000

PR 10-2B Compare three depreciation methods

Plum Coatings Company purchased waterproofing equipment on January 2, 2011, for $450,000. The equipment was expected to have a useful life of four years, or 10,000 operating hours, and a residual value of $50,000. The equipment was used for 3,000 hours during 2011, 4,000 hours in 2012, 2,500 hours in 2013, and 500 hours in 2014.

Instructions

1. Determine the amount of depreciation expense for the years ended December 31, 2011, 2012, 2013, and 2014, by (a) the straight-line method, (b) the units-of-production method, and (c) the double-declining-balance method. Also determine the total depreciation expense for the four years by each method. The following columnar headings are suggested for recording the depreciation expense amounts:

	Depreciation Expense		
Year	Straight-Line Method	Units-of-Production Method	Double-Declining-Balance Method

(Continued)

2. What method yields the highest depreciation expense for 2011?
3. What method yields the most depreciation over the four-year life of the equipment?

OBJ. 2

✓ a. 2010, $17,325

PR 10-3B Depreciation by three methods; partial years

Helix Company purchased tool sharpening equipment on April 1, 2010, for $72,000. The equipment was expected to have a useful life of three years, or 9,000 operating hours, and a residual value of $2,700. The equipment was used for 2,400 hours during 2010, 4,000 hours in 2011, 2,000 hours in 2012, and 600 hours in 2013.

Instructions

Determine the amount of depreciation expense for the years ended December 31, 2010, 2011, 2012, and 2013, by (a) the straight-line method, (b) the units-of-production method, and (c) the double-declining-balance method.

OBJ. 2, 3

✓ 1. b. Year 1, $36,000 depreciation expense

PR 10-4B Depreciation by two methods; sale of fixed asset

New tire retreading equipment, acquired at a cost of $72,000 at the beginning of a fiscal year, has an estimated useful life of four years and an estimated residual value of $5,400. The manager requested information regarding the effect of alternative methods on the amount of depreciation expense each year. On the basis of the data presented to the manager, the double-declining-balance method was selected.

In the first week of the fourth year, the equipment was sold for $13,750.

Instructions

1. Determine the annual depreciation expense for each of the estimated four years of use, the accumulated depreciation at the end of each year, and the book value of the equipment at the end of each year by (a) the straight-line method and (b) the double-declining-balance method. The following columnar headings are suggested for each schedule:

Year	Depreciation Expense	Accumulated Depreciation, End of Year	Book Value, End of Year

2. Journalize the entry to record the sale.
3. Journalize the entry to record the sale, assuming that the equipment sold for $3,700 instead of $13,750.

OBJ. 1, 2, 3

PR 10-5B Transactions for fixed assets, including sale

The following transactions, adjusting entries, and closing entries were completed by McHenry Furniture Co. during a three-year period. All are related to the use of delivery equipment. The double-declining-balance method of depreciation is used.

2010

Jan. 4. Purchased a used delivery truck for $54,000, paying cash.

Feb. 24. Paid garage $275 for changing the oil, replacing the oil filter, and tuning the engine on the delivery truck.

Dec. 31. Recorded depreciation on the truck for the fiscal year. The estimated useful life of the truck is eight years, with a residual value of $12,000 for the truck.

2011

Jan. 3. Purchased a new truck for $60,000, paying cash.

Mar. 7. Paid garage $300 to tune the engine and make other minor repairs on the used truck.

Apr. 30 Sold the used truck for $35,000. (Record depreciation to date in 2011 for the truck.)

Dec. 31. Record depreciation for the new truck. It has an estimated residual value of $16,000 and an estimated life of 10 years.

2012

July 1. Purchased a new truck for $64,000, paying cash.

Oct. 7. Sold the truck purchased January 3, 2011, for $45,000. (Record depreciation for the year.)

Dec. 31. Recorded depreciation on the remaining truck. It has an estimated residual value of $17,500 and an estimated useful life of 10 years.

Instructions

Journalize the transactions and the adjusting entries.

OBJ. 4, 5

✔ b. $45,000

PR 10-6B Amortization and depletion entries

Data related to the acquisition of timber rights and intangible assets during the current year ended December 31 are as follows:

a. On December 31, the company determined that $1,800,000 of goodwill was impaired.

b. Governmental and legal costs of $900,000 were incurred on June 30 in obtaining a patent with an estimated economic life of 10 years. Amortization is to be for one-half year.

c. Timber rights on a tract of land were purchased for $1,560,000 on February 4. The stand of timber is estimated at 12,000,000 board feet. During the current year, 3,200,000 board feet of timber were cut and sold.

Instructions

1. Determine the amount of the amortization, depletion, or impairment for the current year for each of the foregoing items.
2. Journalize the adjusting entries to record the amortization, depletion, or impairment for each item.

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SA 10-1 Straight-line depreciation, multiple assets

The fixed asset details for Hydro-Link, Inc., are as follows:

Asset	Initial Cost	Estimated Residual Value	Estimated Useful Life (in years)
Computers	$36,000	$ 5,800	4
Conveyors	58,000	16,000	12
Cutting machine	7,600	1,200	8
Extruding machine	9,000	1,500	10
Forklift	16,000	3,400	7
Furnace	22,000	4,500	20

a. Open the Excel file *SA10-1_2e*.

b. Develop a spreadsheet to determine the annual straight-line depreciation for each asset.

c. When you have completed the depreciation table, perform a "save as," replacing the entire file name with the following:

SA10-1_2e[your first name initial]_[your last name]

SA 10-2 Straight-line depreciation, revised estimates

The Better Bakery Company has a baking oven that has a book value at the beginning of the current year of $95,000 and an estimated residual value of $3,000. The remaining useful life of the baking oven is estimated to be five years.

a. Open the Excel file *SA10-2_2e*.

b. Prepare a spreadsheet to determine the depreciation expense under the straight-line method for the current year.

c. When you have completed the depreciation table, perform a "save as," replacing the entire file name with the following:

SA10-2_2e[your first name initial]_[your last name]

SA 10-3 Units-of-production method, multiple assets

Details of the subsidiary ledger for the delivery trucks of Klondike Delivery, Inc., are as follows:

Truck No.	Initial Cost	Estimated Residual Value	Estimated Useful Life (in miles)	Miles Operated in the Current Year
1	$37,500	$1,100	140,000	35,000
2	29,650	900	125,000	32,000
3	32,800	1,300	150,000	40,000
4	45,900	900	180,000	38,000
5	36,700	1,500	160,000	28,000
6	48,400	2,400	200,000	42,000

a. Open the Excel file *SA10-3_2e*.

b. Develop a spreadsheet to determine the deprecation per mile and the current year depreciation expense for each truck using the units-of-production method.

c. When you have completed the depreciation table, perform a "save as," replacing the entire file name with the following:

SA10-3_2e[your first name initial]_[your last name]

SA 10-4 Units-of-production method, multiple assets

Daniels Construction Company purchased a bulldozer, backhoe, and grader at the beginning of the current year. The bulldozer has an initial cost of $120,000 with an estimated salvage value of $12,000. The backhoe has an initial cost of $62,000 and an estimated salvage value of $6,000. Lastly, the grader has an initial cost of $75,000 and an estimated salvage value of $8,000. The estimated useful life and hours operated in the current year are as follows:

Equipment	Estimated Useful Life (in hours)	Hours Operated in the Current Year
Bulldozer	24,000	2,200
Backhoe	22,400	1,850
Grader	20,000	2,160

a. Open the Excel file *SA10-4_2e*.

b. Develop a spreadsheet to determine the depreciation per hour and the current year depreciation expense for each piece of equipment using the units-of-production method.

c. When you have completed the depreciation table, perform a "save as," replacing the entire file name with the following:

SA10-4_2e[your first name initial]_[your last name]

CHAPTER

11

hoto/Tom Gannam

Current Liabilities and Payroll

Panera Bread

Buying goods on credit is probably as old as business itself. In fact, the ancient Babylonians were lending money to support trade as early as 1300 B.C. The use of credit makes transactions more convenient and improves buying power. For *individuals*, the most common form of short-term credit is a credit card. Credit cards allow individuals to purchase items before they are paid for, while removing the need for individuals to carry large amounts of cash. They also provide documentation of purchases through a monthly credit card statement.

Short-term credit is also used by *businesses* to make purchasing items for manufacture or resale more convenient. Short-term credit also gives a business control over the payment for goods and services. For example, **Panera Bread**, a chain of bakery-cafés located throughout the United States, uses short-term trade credit, or accounts payable, to purchase ingredients for making bread products in its bakeries. Short-term trade credit gives Panera control over cash payments by separating the purchase function from the payment function. Thus, the employee responsible for purchasing the bakery ingredients is separated from the employee responsible for paying for the purchase. This separation of duties can help prevent unauthorized purchases or payments.

In addition to accounts payable, a business like Panera Bread can also have current liabilities related to payroll, payroll taxes, employee benefits, short-term notes, unearned revenue, and contingencies. This chapter discusses each of these types of current liabilities.

Learning Objectives

Obj.	After studying this chapter, you should be able to:	Example Exercises	Page
OBJ. 1	Describe and illustrate current liabilities related to accounts payable, current portion of long-term debt, and notes payable.		
	Current Liabilities		
	Accounts Payable		
	Current Portion of Long-Term Debt		
	Short-Term Notes Payable	EE 11-1	491
OBJ. 2	Determine employer liabilities for payroll, including liabilities arising from employee earnings and deductions from earnings.		
	Payroll and Payroll Taxes		
	Liability for Employee Earnings		
	Deductions from Employee Earnings	EE 11-2	493
	Computing Employee Net Pay	EE 11-3 excel success	495
	Liability for Employer's Payroll Taxes		
OBJ. 3	Describe payroll accounting systems that use a payroll register, employee earnings records, and a general journal.		
	Accounting Systems for Payroll and Payroll Taxes		
	Payroll Register	EE 11-4, 11-5	499, 500
	Employee's Earnings Record		
	Payroll Checks		
	Payroll System Diagram		
	Internal Controls for Payroll Systems		
OBJ. 4	Journalize entries for employee fringe benefits, including vacation pay and pensions.		
	Employees' Fringe Benefits		
	Vacation Pay		
	Pensions	EE 11-6	506
	Postretirement Benefits Other than Pensions		
	Current Liabilities on the Balance Sheet		
OBJ. 5	Describe the accounting treatment for contingent liabilities and journalize entries for product warranties.		
	Contingent Liabilities		
	Probable and Estimable	EE 11-7	508
	Probable and Not Estimable		
	Reasonably Possible		
	Remote		
OBJ. 6	Describe and illustrate the use of the quick ratio in analyzing a company's ability to pay its current liabilities.		
	Financial Analysis and Interpretation: Quick Ratio	EE 11-8	511

At a Glance 11 Page 512

OBJ. 1 Describe and illustrate current liabilities related to accounts payable, current portion of long-term debt, and notes payable.

Current Liabilities

When a company or a bank advances *credit,* it is making a loan. The company or bank is called a *creditor* (or *lender*). The individuals or companies receiving the loan are called *debtors* (or *borrowers*).

Debt is recorded as a liability by the debtor. *Long-term liabilities* are debts due beyond one year. Thus, a 30-year mortgage used to purchase property is a long-term liability. *Current liabilities* are debts that will be paid out of current assets and are due within one year.

Three types of current liabilities are discussed in this section—accounts payable, the current portion of long-term debt, and short-term notes payable.

Accounts Payable

Accounts payable transactions have been described and illustrated in earlier chapters. These transactions involved a variety of purchases on account, including the purchase of merchandise and supplies. For most companies, accounts payable is the largest current liability. Exhibit 1 shows the accounts payable balance as a percent of total current liabilities for a number of companies.

EXHIBIT 1

Accounts Payable as a Percent of Total Current Liabilities

Company	Accounts Payable as a Percent of Total Current Liabilities
Alcoa Inc.	36%
AT&T	57
Gap Inc.	47
IBM	17
Rite Aid Corp.	55
Chevron Corp.	52

Current Portion of Long-Term Debt

Long-term liabilities are often paid back in periodic payments, called *installments.* Such installments that are due *within* the coming year are classified as a current liability. The installments due *after* the coming year are classified as a long-term liability.

To illustrate, The Coca-Cola Company reported the following debt payments schedule in its December 31, 2009, annual report to shareholders:

Fiscal year ending	
2010	$ 51,000,000
2011	573,000,000
2012	153,000,000
2013	178,000,000
2014	912,000,000
Thereafter	3,243,000,000
Total principal payments	$5,110,000,000

The debt of $51,000,000 due in 2010 would be reported as a current liability on the December 31, 2009, balance sheet. The remaining debt of $5,059,000,000 ($5,110,000,000 – $51,000,000) would be reported as a long-term liability on the balance sheet.

Short-Term Notes Payable

Notes may be issued to purchase merchandise or other assets. Notes may also be issued to creditors to satisfy an account payable created earlier.[1]

To illustrate, assume that Nature's Sunshine Company issued a 90-day, 12% note for $1,000, dated August 1, 2011, to Murray Co. for a $1,000 overdue account. The entry to record the issuance of the note is as follows:

Aug.	1	Accounts Payable—Murray Co.		1,000	
		Notes Payable			1,000
		Issued a 90-day, 12% note on account.			

When the note matures, the entry to record the payment of $1,000 plus $30 interest ($1,000 × 12% × 90/360) is as follows:

Oct.	30	Notes Payable		1,000	
		Interest Expense		30	
		Cash			1,030
		Paid principal and interest due on note.			

---

[1] The accounting for notes received to satisfy an account receivable was described and illustrated in Chapter 9, Receivables.

The interest expense is reported in the Other Expense section of the income statement for the year ended December 31, 2011. The interest expense account is closed at December 31.

Each note transaction affects a debtor (borrower) and creditor (lender). The following illustration shows how the same transactions are recorded by the debtor and creditor. In this illustration, the debtor (borrower) is Bowden Co., and the creditor (lender) is Coker Co.

	Bowden Co. (Borrower)			**Coker Co. (Creditor)**		
May 1. Bowden Co. purchased merchandise on account from Coker Co., $10,000, 2/10, n/30. The merchandise cost Coker Co. $7,500.	Merchandise Inventory	10,000		Accounts Receivable	10,000	
	Accounts Payable		10,000	Sales		10,000
				Cost of Merchandise Sold	7,500	
				Merchandise Inventory		7,500
May 31. Bowden Co. issued a 60-day, 12% note for $10,000 to Coker Co. on account.	Accounts Payable	10,000		Notes Receivable	10,000	
	Notes Payable		10,000	Accounts Receivable		10,000
July 30. Bowden Co. paid Coker Co. the amount due on the note of May 31. Interest: $10,000 × 12% × 60/360.	Notes Payable	10,000		Cash	10,200	
	Interest Expense	200		Interest Revenue		200
	Cash		10,200	Notes Receivable		10,000

A company may also borrow from a bank by issuing a note. To illustrate, assume that on September 19 Iceburg Company borrowed cash from First National Bank by issuing a $4,000, 90-day, 15% note to the bank. The entry to record the issuance of the note and the cash proceeds is as follows:

Sept.	19	Cash		4,000	
		Notes Payable			4,000
		Issued a 90-day, 15% note to First National Bank.			

On the due date of the note (December 18), Iceburg Company owes First National Bank $4,000 plus interest of $150 ($4,000 × 15% × 90/360). The entry to record the payment of the note is as follows:

Dec.	18	Notes Payable		4,000	
		Interest Expense		150	
		Cash			4,150
		Paid principal and interest due on note.			

In some cases, a *discounted note* may be issued rather than an interest-bearing note. A discounted note has the following characteristics:

1. The interest rate on the note is called the *discount rate*.
2. The amount of interest on the note, called the *discount*, is computed by multiplying the discount rate times the face amount of the note.
3. The debtor (borrower) receives the face amount of the note less the discount, called the *proceeds*.
4. The debtor must repay the face amount of the note on the due date.

To illustrate, assume that on August 10, Cary Company issues a $20,000, 90-day discounted note to Western National Bank. The discount rate is 15%, and the amount

of the discount is $750 ($20,000 × 15% × 90/360). Thus, the proceeds received by Cary Company are $19,250. The entry by Cary Company is as follows:

Aug.	10	Cash		19,250	
		Interest Expense		750	
		Notes Payable			20,000
		Issued a 90-day discounted note to Western National Bank at a 15% discount rate.			

The entry when Cary Company pays the discounted note on November 8 is as follows:[2]

Nov.	8	Notes Payable		20,000	
		Cash			20,000
		Paid note due.			

Other current liabilities that have been discussed in earlier chapters include accrued expenses, unearned revenue, and interest payable. The accounting for wages and salaries, termed *payroll accounting*, is discussed next.

Example Exercise 11-1 Proceeds from Notes Payable

OBJ 1

On July 1, Bella Salon Company issued a 60-day note with a face amount of $60,000 to Delilah Hair Products Company for merchandise inventory.

a. Determine the proceeds of the note, assuming the note carries an interest rate of 6%.

b. Determine the proceeds of the note, assuming the note is discounted at 6%.

Follow My Example 11-1

a. $60,000

b. $59,400 [$60,000 – ($60,000 × 6% × 60/360)]

Practice Exercises: **PE 11-1A, PE 11-1B**

Payroll and Payroll Taxes

OBJ 2 Determine employer liabilities for payroll, including liabilities arising from employee earnings and deductions from earnings.

In accounting, **payroll** refers to the amount paid to employees for services they provided during the period. A company's payroll is important for the following reasons:

1. Payroll and related payroll taxes significantly affect the net income of most companies.
2. Payroll is subject to federal and state regulations.
3. Good employee morale requires payroll to be paid timely and accurately.

Liability for Employee Earnings

Salary usually refers to payment for managerial and administrative services. Salary is normally expressed in terms of a month or a year. *Wages* usually refers to payment for employee manual labor. The rate of wages is normally stated on an hourly or a weekly basis. The salary or wage of an employee may be increased by bonuses, commissions, profit sharing, or cost-of-living adjustments.

Note:
Employee salaries and wages are expenses to an employer.

---

[2] If the accounting period ends before a discounted note is paid, an adjusting entry should record the prepaid (deferred) interest that is not yet an expense. This deferred interest would be deducted from Notes Payable in the Current Liabilities section of the balance sheet.

Companies engaged in interstate commerce must follow the Fair Labor Standards Act. This act, sometimes called the Federal Wage and Hour Law, requires employers to pay a minimum rate of 1½ times the regular rate for all hours worked in excess of 40 hours per week. Exemptions are provided for executive, administrative, and some supervisory positions. Increased rates for working overtime, nights, or holidays are common, even when not required by law. These rates may be as much as twice the regular rate.

To illustrate computing an employee's earnings, assume that John T. McGrath is a salesperson employed by McDermott Supply Co. McGrath's regular rate is $34 per hour, and any hours worked in excess of 40 hours per week are paid at 1½ times the regular rate. McGrath worked 42 hours for the week ended December 27. His earnings of **$1,462** for the week are computed as follows:

Earnings at regular rate (40 hrs. × $34)	$1,360
Earnings at overtime rate [2 hrs. × ($34 × 1½)]	102
Total earnings	$1,462

Deductions from Employee Earnings

The total earnings of an employee for a payroll period, including any overtime pay, are called **gross pay**. From this amount is subtracted one or more *deductions* to arrive at the **net pay**. Net pay is the amount paid the employee. The deductions normally include federal, state, and local income taxes, medical insurance, and pension contributions.

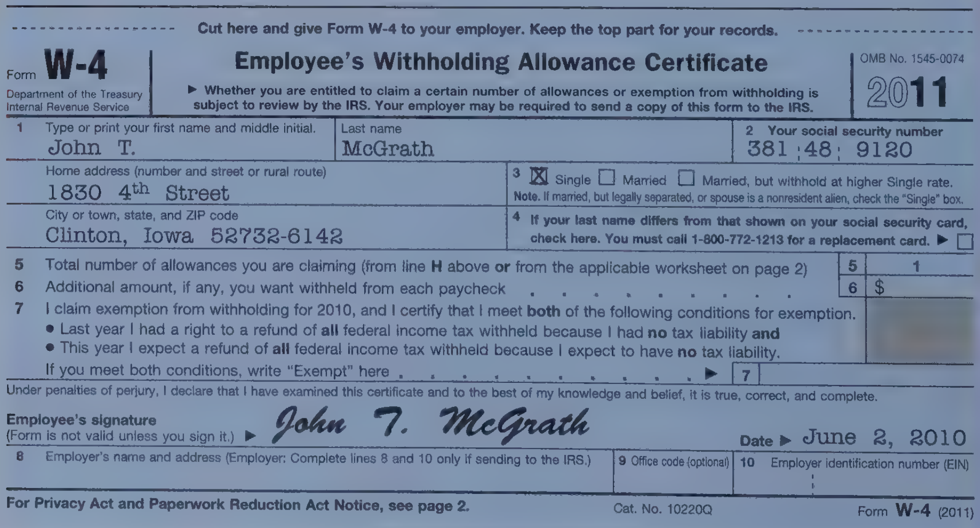
Income Taxes Employers normally withhold a portion of employee earnings for payment of the employees' federal income tax. Each employee authorizes the amount to be withheld by completing an "Employee's Withholding Allowance Certificate," called a W-4. Exhibit 2 is the W-4 form submitted by John T. McGrath.

On the W-4, an employee indicates marital status and the number of withholding allowances. A single employee may claim one withholding allowance. A married employee may claim an additional allowance for a spouse. An employee may also claim an allowance for each dependent other than a spouse. Each allowance reduces the federal income tax withheld from the employee's pay. Exhibit 2 indicates that John T. McGrath is single and, thus, claimed one withholding allowance.

The federal income tax withheld depends on each employee's gross pay and W-4 allowance. Withholding tables issued by the Internal Revenue Service (IRS) are used to determine amounts to withhold. Exhibit 3 is an example of an IRS wage withholding table for a single person who is paid weekly.[3]

EXHIBIT 2

Employee's Withholding Allowance Certificate (W-4 Form)



Cut here and give Form W-4 to your employer. Keep the top part for your records.

Form **W-4**
Department of the Treasury
Internal Revenue Service

Employee's Withholding Allowance Certificate

▶ Whether you are entitled to claim a certain number of allowances or exemption from withholding is subject to review by the IRS. Your employer may be required to send a copy of this form to the IRS.

OMB No. 1545-0074
2011

1 Type or print your first name and middle initial. John T.
Last name McGrath
2 Your social security number 381 48 9120
Home address (number and street or rural route) 1830 4th Street
3 ☒ Single ☐ Married ☐ Married, but withhold at higher Single rate.
Note. If married, but legally separated, or spouse is a nonresident alien, check the "Single" box.
City or town, state, and ZIP code Clinton, Iowa 52732-6142
4 **If your last name differs from that shown on your social security card, check here. You must call 1-800-772-1213 for a replacement card.** ▶ ☐

5 Total number of allowances you are claiming (from line **H** above **or** from the applicable worksheet on page 2) 5 1
6 Additional amount, if any, you want withheld from each paycheck . . . . 6 $
7 I claim exemption from withholding for 2010, and I certify that I meet **both** of the following conditions for exemption.

- Last year I had a right to a refund of **all** federal income tax withheld because I had **no** tax liability **and**
- This year I expect a refund of **all** federal income tax withheld because I expect to have **no** tax liability.

If you meet both conditions, write "Exempt" here . . . . ▶ 7

Under penalties of perjury, I declare that I have examined this certificate and to the best of my knowledge and belief, it is true, correct, and complete.

Employee's signature
(Form is not valid unless you sign it.) ▶ John T. McGrath
Date ▶ June 2, 2010

8 Employer's name and address (Employer: Complete lines 8 and 10 only if sending to the IRS.)
9 Office code (optional)
10 Employer identification number (EIN)

For Privacy Act and Paperwork Reduction Act Notice, see page 2. Cat. No. 10220Q Form **W-4** (2011)

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[3] IRS withholding tables are also available for married employees and for pay periods other than weekly.

In Exhibit 3, each row is the employee's wages after deducting the employee's withholding allowances. Each year, the amount of the standard withholding allowance is determined by the IRS. For ease of computation and because this amount changes each year, we assume that the standard withholding allowance to be deducted in Exhibit 3 for a single person paid weekly is $70.[4] Thus, if two withholding allowances are claimed, $140 ($70 × 2) is deducted.

To illustrate, John T. McGrath made $1,462 for the week ended December 27. McGrath's W-4 claims one withholding allowance of $70. Thus, the wages used in determining McGrath's withholding bracket in Exhibit 3 are $1,392 ($1,462 – $70).

After the person's withholding wage bracket has been computed, the federal income tax to be withheld is determined as follows:

Step 1. Locate the proper withholding wage bracket in Exhibit 3.

McGrath's wages after deducting one standard IRS withholding allowance are $1,392 ($1,462 – $70). Therefore, the wage bracket for McGrath is $1,302–$1,624.

Step 2. Compute the withholding for the proper wage bracket using the directions in the two right-hand columns in Exhibit 3.

For McGrath's wage bracket, the withholding is computed as "$234.60. plus 27% of the excess over $1,302." Hence, McGrath's withholding is $258.90, as shown below.

Initial withholding from wage bracket	*$234.60*
Plus [27% × ($1,392 – $1,302)]	*24.30*
Total withholding	*$258.90*

EXHIBIT 3 Wage Bracket Withholding Table

Table for Percentage Method of Withholding WEEKLY Payroll Period

(a) **SINGLE person** (including head of household)—

If the amount of wages (after subtracting withholding allowances) is:		The amount of income tax to withhold is:	
Not over $116		$0	
Over—	But not over—		of excess over—
$116	—$200	10%	—$116
$200	—$693	$8.40 plus 15%	—$200
$693	—$1,302	$82.35 plus 25%	—$693
$1,302	—$1,624	$234.60 plus 27%	—$1,302
$1,624	—$1,687	$321.54 plus 30%	—$1,624
$1,687	—$3,344	$340.44 plus 28%	—$1,687
$3,344	—$7,225	$804.40 plus 33%	—$3,344
$7,225		$2,085.13 plus 35%	—$7,225

McGrath wage bracket

Source: Publication 15, *Employer's Tax Guide*, Internal Revenue Service, 2010.

Residents of New York City must pay federal, state, and city income taxes.

Employers may also be required to withhold state or city income taxes. The amounts to be withheld are determined on state-by-state and city-by-city bases.

Example Exercise 11-2 Federal Income Tax Withholding

2

Karen Dunn's weekly gross earnings for the present week were $2,250. Dunn has two exemptions. Using the wage bracket withholding table in Exhibit 3 with a $70 standard withholding allowance for each exemption, what is Dunn's federal income tax withholding?

(continued)

---

[4] The actual IRS standard withholding allowance changes every year and was $70.19 for 2010.

Follow My Example 11-2

Total wage payment		$ 2,250
One allowance (provided by IRS)	$70	
Multiplied by allowances claimed on Form W-4	× 2	140
Amount subject to withholding		$ 2,110
Initial withholding from wage bracket in Exhibit 3		$340.44
Plus additional withholding: 28% of excess over $1,687		118.44*
Federal income tax withholding		$458.88

*28% × ($2,110 – $1,687)

Practice Exercises: **PE 11-2A, PE 11-2B**

FICA Tax Employers are required by the Federal Insurance Contributions Act (FICA) to withhold a portion of the earnings of each employee. The **FICA tax** withheld contributes to the following two federal programs:

1. *Social security*, which provides payments for retirees, survivors, and disability insurance.
2. *Medicare*, which provides health insurance for senior citizens.

The amount withheld from each employee is based on the employee's earnings *paid* in the *calendar* year. The withholding tax rates and maximum earnings subject to tax are often revised by Congress.[5] To simplify, this chapter assumes the following rates and earnings subject to tax:

1. Social security: 6% on all earnings
2. Medicare: 1.5% on all earnings

To illustrate, assume that John T. McGrath's earnings for the week ending December 27 are $1,462 and the total FICA tax to be withheld is **$109.65**, as shown below.

Earnings subject to 6% social security tax	$1,462	
Social security tax rate	× 6%	
Social security tax		$ 87.72
Earnings subject to 1.5% Medicare tax	$1,462	
Medicare tax rate	× 1.5%	
Medicare tax		21.93
Total FICA tax		$109.65

Other Deductions Employees may choose to have additional amounts deducted from their gross pay. For example, an employee may authorize deductions for retirement savings, for charitable contributions, or life insurance. A union contract may also require the deduction of union dues.

Computing Employee Net Pay

Gross earnings less payroll deductions equals *net pay*, sometimes called *take-home pay*. Assuming that John T. McGrath authorized deductions for retirement savings and for a United Fund contribution, McGrath's net pay for the week ended December 27 is $1,068.45, as shown below.

Gross earnings for the week		$1,462.00
Deductions:		
Social security tax	$ 87.72	
Medicare tax	21.93	
Federal income tax	258.90	
Retirement savings	20.00	
United Fund	5.00	
Total deductions		393.55
Net pay		$1,068.45

[5] As of January 1, 2010, the social security tax rate was 6.2% and the Medicare tax rate was 1.45%. Earnings subject to the social security tax are limited to an annual threshold amount, but for text examples and problems, assume all accumulated annual earnings are below this threshold and subject to the tax.

Example Exercise 11-3 Employee Net Pay

OBJ. 2

Karen Dunn's weekly gross earnings for the week ending December 3 were $2,250, and her federal income tax withholding was $458.88. Assuming the social security rate is 6% and Medicare is 1.5%, what is Dunn's net pay?

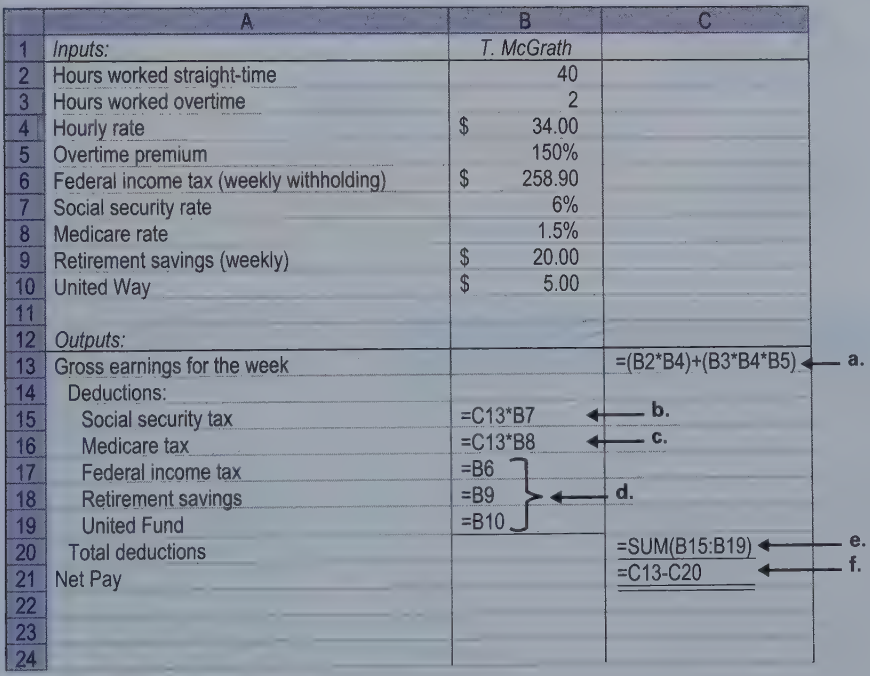
Follow My Example 11-3

Total wage payment		$2,250.00
Less: Federal income tax withholding	$458.88	
Social security tax ($2,250 × 6%)	135.00	
Medicare tax ($2,250 × 1.5%)	33.75	627.63
Net pay		$1,622.37

Practice Exercises: **PE 11-3A, PE 11-3B**

excel success

Employee net pay can be computed using a spreadsheet, as follows.



	A	B	C	
1	*Inputs:*	*T. McGrath*		
2	Hours worked straight-time	40		
3	Hours worked overtime	2		
4	Hourly rate	$ 34.00		
5	Overtime premium	150%		
6	Federal income tax (weekly withholding)	$ 258.90		
7	Social security rate	6%		
8	Medicare rate	1.5%		
9	Retirement savings (weekly)	$ 20.00		
10	United Way	$ 5.00		
11				
12	*Outputs:*			
13	Gross earnings for the week		=(B2*B4)+(B3*B4*B5)	a.
14	Deductions:			
15	Social security tax	=C13*B7		b.
16	Medicare tax	=C13*B8		c.
17	Federal income tax	=B6		
18	Retirement savings	=B9		d.
19	United Fund	=B10		
20	Total deductions		=SUM(B15:B19)	e.
21	Net Pay		=C13-C20	f.
22				
23				
24				

The spreadsheet should be developed with an input and output section. The outputs build formulas based on the inputs.

a. Enter in C13 the gross earnings:

$$=\underbrace{(B2*B4)}_{\text{Regular time earnings}}+\underbrace{(B3*B4*B5)}_{\text{Overtime earnings}}$$

b. Enter in B15 the formula for the social security tax, =C13*B7.

c. Enter in B16 the formula for the Medicare tax, =C13*B8.

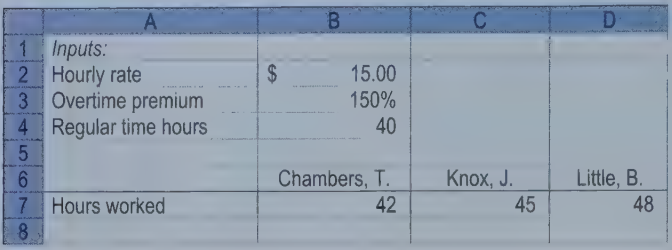
d. Enter in B17, B18, and B19, the cell references for the federal income tax, retirement savings, and United Fund, respectively.

e. Enter in C20 the formula to sum the deductions, =SUM(B15:B19).

f. Enter in C21 the formula for the net pay, =C13-C20.

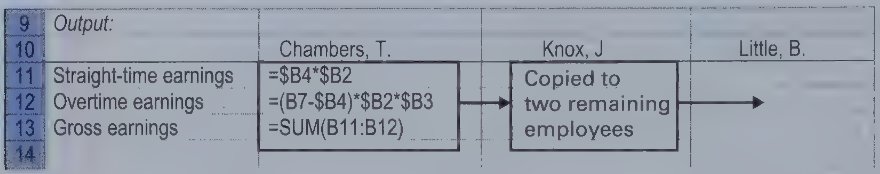
Absolute Cell References

Many employers have more than one employee. Spreadsheets are very useful for summarizing payroll information for many employees. We will illustrate multiple employees in order to introduce the Excel concept of absolute cell references. Absolute cell references are often used in Excel formula design. For example, assume Dandridge Company has three employees who are paid $15 per hour with an overtime premium of 150% for hours in excess of 40 hours per week. Payroll information for a recent week is as follows:



	A	B	C	D
1	*Inputs:*			
2	Hourly rate	$ 15.00		
3	Overtime premium	150%		
4	Regular time hours	40		
5				
6		Chambers, T.	Knox, J.	Little, B.
7	Hours worked	42	45	48
8				

The inputs include three columns of hours worked information for three employees. The formula for the straight-time, overtime, and gross earnings are first determined for T. Chambers as follows:



9	*Output:*			
10		Chambers, T.	Knox, J	Little, B.
11	Straight-time earnings	=$B4*$B2	Copied to two remaining employees	
12	Overtime earnings	=(B7-$B4)*$B2*$B3		
13	Gross earnings	=SUM(B11:B12)		
14				

The straight-time earnings formula is entered as,

=$B4*$B2

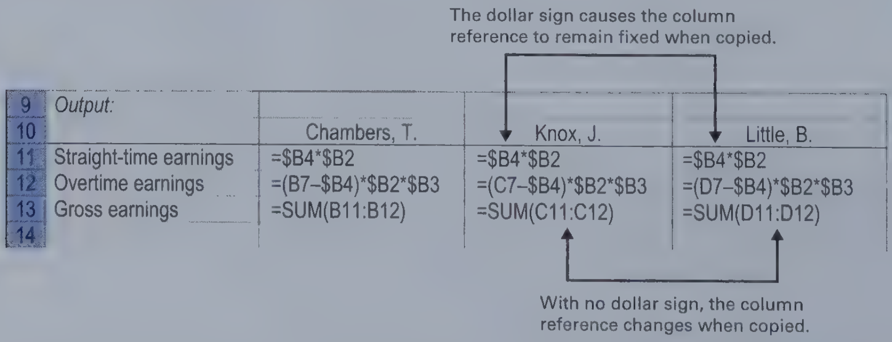
The dollar sign in front of both lettered columns indicates that the column references is to remain fixed when copying across the columns. That is, the formula is the same for all three employees, and the columns don't adjust during copying.

The overtime earnings formula is entered as:

=(B7-$B4)*$B2*$B3

In this case, the column reference for B4, B2, and B3 remains fixed in copying. However, B7 does adjust the column reference when copied. The sum formula is entered last. This formula requires no absolute cell references because the columns adjust in copying.

Once the three formulas are entered, they are copied to the two other employees. The formulas for all three employees after copying would appear as follows:



The dollar sign causes the column reference to remain fixed when copied.

9	*Output:*			
10		Chambers, T.	Knox, J.	Little, B.
11	Straight-time earnings	=$B4*$B2	=$B4*$B2	=$B4*$B2
12	Overtime earnings	=(B7–$B4)*$B2*$B3	=(C7–$B4)*$B2*$B3	=(D7–$B4)*$B2*$B3
13	Gross earnings	=SUM(B11:B12)	=SUM(C11:C12)	=SUM(D11:D12)
14				

With no dollar sign, the column reference changes when copied.

In the same way that the dollar sign is used in front of columns, the dollar sign can also be placed in front of the row reference when the row is to remain fixed when copying down rows. The use of absolute cell references ($ sign) is an important Excel formula design concept. You will use them often.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Try*It* This Excel Success example uses an Excel function referred to as cell referencing. Go to the ***Excel Tutor*** titled **Absolute & Relative Cell References** for additional help on this useful Excel function!

Liability for Employer's Payroll Taxes

Employers are subject to the following payroll taxes for amounts paid their employees:

1. *FICA Tax:* Employers must match the employee's FICA tax contribution.
2. *Federal Unemployment Compensation Tax (FUTA):* This employer tax provides for temporary payments to those who become unemployed. The tax collected by the federal government is allocated among the states for use in state programs rather than paid directly to employees. Congress often revises the FUTA tax rate and maximum earnings subject to tax.
3. *State Unemployment Compensation Tax (SUTA):* This employer tax also provides temporary payments to those who become unemployed. The FUTA and SUTA programs are closely coordinated, with the states distributing the unemployment checks.[6] SUTA tax rates and earnings subject to tax vary by state.[7]

The preceding employer taxes are an operating expense of the company. Exhibit 4 summarizes the responsibility for employee and employer payroll taxes.

EXHIBIT 4

Responsibility for Tax Payments

Business Connection

THE MOST YOU WILL EVER PAY

In 1936, the Social Security Board described how the tax was expected to affect a worker's pay, as follows:

The taxes called for in this law will be paid both by your employer and by you. For the next 3 years you will pay maybe 15 cents a week, maybe 25 cents a week, maybe 30 cents or more, according to what you earn. That is to say, during the next 3 years, beginning January 1, 1937, you will pay 1 cent for every dollar you earn, and at the same time your employer will pay 1 cent for every dollar you earn, up to $3,000 a year. . . .

. . . Beginning in 1940 you will pay, and your employer will pay, 1½ cents for each dollar you earn, up to $3,000 a year . . . and then beginning in 1943, you will pay 2 cents, and so will your employer, for every dollar you earn for the next three years. After that, you and your employer will each pay half a cent more for 3 years, and finally, beginning in 1949, . . . you and your employer will each pay 3 cents on each dollar you earn, up to $3,000 a year. That is the most you will ever pay.

The rate on January 1, 2010, was 7.65 cents per dollar earned (7.65%). The social security portion was 6.20% on the first $106,800 of earnings. The Medicare portion was 1.45% on all earnings.

Source: Arthur Lodge, "That Is the Most You Will Ever Pay," *Journal of Accountancy*, October 1985, p. 44.

Accounting Systems for Payroll and Payroll Taxes

OBJ 3 Describe payroll accounting systems that use a payroll register, employee earnings records, and a general journal.

Payroll systems should be designed to:

1. Pay employees accurately and timely.
2. Meet regulatory requirements of federal, state, and local agencies.
3. Provide useful data for management decision-making needs.

---

[6] This rate may be reduced to 0.8% for credits for state unemployment compensation tax.

[7] As of January 1, 2010, the maximum state rate credited against the federal unemployment rate was 5.4% of the first $7,000 of each employee's earnings during a calendar year.

EXHIBIT 5 Payroll Register

			Earnings			
	Employee Name	Total Hours	Regular	Overtime	Total	
1	Abrams, Julie S.	40	500.00		500.00	1
2	Elrod, Fred G.	44	392.00	58.80	450.80	2
3	Gomez, Jose C.	40	840.00		840.00	3
4	McGrath, John T.	42	1,360.00	102.00	1,462.00	4
25	Wilkes, Glenn K.	40	480.00		480.00	25
26	Zumpano, Michael W.	40	600.00		600.00	26
27	Total		13,328.00	574.00	13,902.00	27
28						28

Although payroll systems differ among companies, the major elements of most payroll systems are:

1. Payroll register
2. Employee's earnings record
3. Payroll checks

Payroll Register

The **payroll register** is a multicolumn report used for summarizing the data for each payroll period. Although payroll registers vary by company, a payroll register normally includes the following columns:

1. Employee name
2. Total hours worked
3. Regular earnings
4. Overtime earnings
5. Total gross earnings
6. Social security tax withheld
7. Medicare tax withheld
8. Federal income tax withheld
9. Retirement savings withheld
10. Miscellaneous items withheld
11. Total withholdings
12. Net pay
13. Check number of payroll check issued
14. Accounts debited for payroll expense

Exhibit 5 illustrates a payroll register. The two right-hand columns of the payroll register indicate the accounts debited for the payroll expense. These columns are often referred to as the *payroll distribution*.

Recording Employees' Earnings The column totals of the payroll register provide the basis for recording the journal entry for payroll. The entry based on the payroll register in Exhibit 5 is shown on the next page.

Recording and Paying Payroll Taxes Payroll taxes are recorded as liabilities when the payroll is *paid* to employees. In addition, employers compute and report payroll taxes on a *calendar-year* basis, which may differ from a company's fiscal year.

Note:
Payroll taxes become a liability to the employer when the payroll is paid.

EXHIBIT 5 (Concluded)

	Deductions Withheld						Paid		Accounts Debited		
	Social Security Tax	Medicare Tax	Federal Income Tax	Retirement Savings	Misc.	Total	Net Pay	Check No.	Sales Salaries Expense	Office Salaries Expense	
1	30.00	7.50	74.00	20.00	UF 10.00	141.50	358.50	6857	500.00		1
2	27.05	6.76	62.00		UF 50.00	145.81	304.99	6858		450.80	2
3	50.40	12.60	131.00	25.00	UF 10.00	229.00	611.00	6859	840.00		3
4	87.72	21.93	258.90	20.00	UF 5.00	393.55	1,068.45	6860	1,462.00		4
25	28.80	7.20	69.00	10.00		115.00	365.00	6880	480.00		25
26	36.00	9.00	79.00	5.00	UF 2.00	131.00	469.00	6881		600.00	26
27	834.12	208.53	3,332.00	680.00	UF 520.00	5,574.65	8,327.35		11,122.00	2,780.00	27
28											28

Miscellaneous Deductions: UF—United Fund

Dec.	27	Sales Salaries Expense		11,122.00	
		Office Salaries Expense		2,780.00	
		Social Security Tax Payable			834.12
		Medicare Tax Payable			208.53
		Employees Federal Income Tax Payable			3,332.00
		Retirement Savings Deductions Payable			680.00
		United Fund Deductions Payable			520.00
		Salaries Payable			8,327.35
		Payroll for week ended December 27.			

Example Exercise 11-4 Journalize Period Payroll

Obj. 3

The payroll register of Chen Engineering Services indicates $900 of social security withheld and $225 of Medicare tax withheld on total salaries of $15,000 for the period. Federal withholding for the period totaled $2,925.

Provide the journal entry for the period's payroll.

Follow My Example 11-4

Salaries Expense	15,000	
Social Security Tax Payable		900
Medicare Tax Payable		225
Employees Federal Withholding Tax Payable		2,925
Salaries Payable		10,950

Practice Exercises: **PE 11-4A, PE 11-4B**

On December 27, McDermott Supply has the following payroll data:

Sales salaries	$11,122
Office salaries owed	2,780
Wages owed employees on December 27	$13,902
Wages subject to payroll taxes:	
Social security tax (6%)	$13,902
Medicare tax (1.5%)	13,902
State (5.4%) and federal (0.8%) unemployment compensation tax	2,710

Employers must match the employees' social security and Medicare tax contributions. In addition, the employer must pay state unemployment compensation tax (SUTA) of 5.4% and federal unemployment compensation tax (FUTA) of 0.8%. When payroll is paid on December 27, these payroll taxes are computed as follows:

Social security tax	$ 834.12	($13,902 × 6%, and from Social Security Tax column of Exhibit 5)
Medicare tax	208.53	($13,902 × 1.5%, and from Medicare Tax column of Exhibit 5)
SUTA	146.34	($2,710 × 5.4%)
FUTA	21.68	($2,710 × 0.8%)
Total payroll taxes	$1,210.67	

The entry to journalize the payroll tax expense for Exhibit 5 is shown below.

Dec.	27	Payroll Tax Expense		1,210.67	
		Social Security Tax Payable			834.12
		Medicare Tax Payable			208.53
		State Unemployment Tax Payable			146.34
		Federal Unemployment Tax Payable			21.68
		Payroll taxes for week ended December 27.			

The preceding entry records a liability for each payroll tax. When the payroll taxes are paid, an entry is recorded debiting the payroll tax liability accounts and crediting Cash.

Example Exercise 11-5 Journalize Payroll Tax

OBJ 3

The payroll register of Chen Engineering Services indicates $900 of social security withheld and $225 of Medicare tax withheld on total salaries of $15,000 for the period. Assume earnings subject to state and federal unemployment compensation taxes are $5,250, at the federal rate of 0.8% and the state rate of 5.4%.

Provide the journal entry to record the payroll tax expense for the period.

Follow My Example 11-5

Payroll Tax Expense	1,450.50	
Social Security Tax Payable		900.00
Medicare Tax Payable		225.00
State Unemployment Tax Payable		283.50*
Federal Unemployment Tax Payable		42.00**

*$5,250 × 5.4%

**$5,250 × 0.8%

Practice Exercises: **PE 11-5A, PE 11-5B**

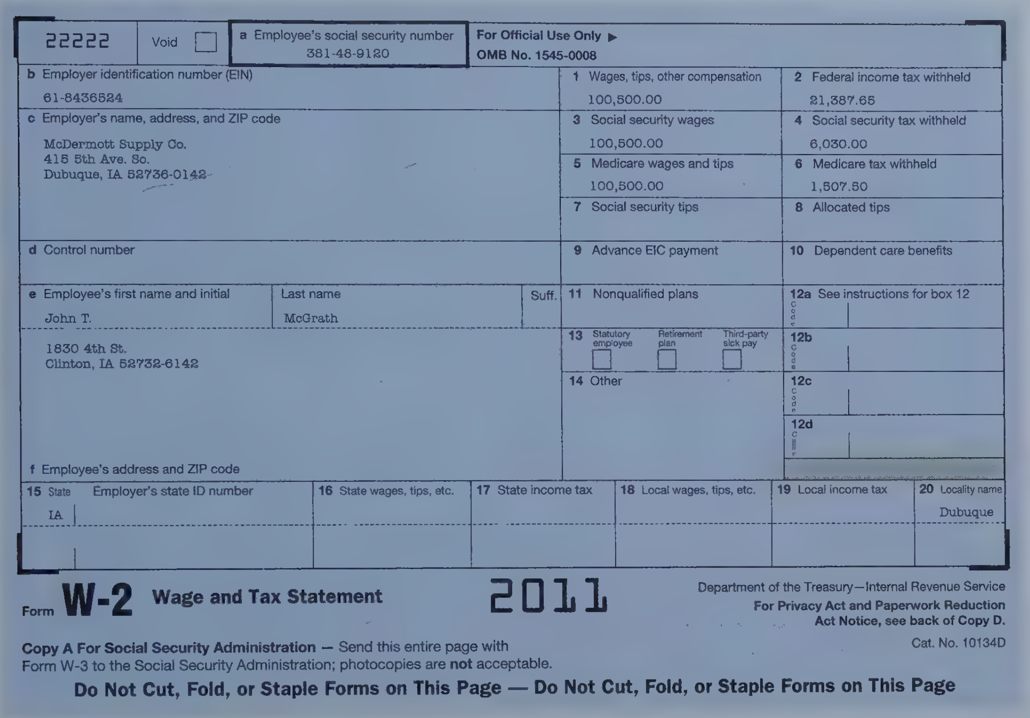
Employee's Earnings Record

Each employee's earnings to date must be determined at the end of each payroll period. This total is necessary for computing the employee's social security tax withholding and the employer's payroll taxes. Thus, detailed payroll records must be kept for each employee. This record is called an **employee's earnings record**.

Exhibit 6, on pages 502–503, shows a portion of John T. McGrath's employee's earnings record. An employee's earnings record and the payroll register are interrelated. For example, McGrath's earnings record for December 27 can be traced to the fourth line of the payroll register in Exhibit 5.

As shown in Exhibit 6, an employee's earnings record has quarterly and yearly totals. These totals are used for tax, insurance, and other reports. For example, one such report is the Wage and Tax Statement, commonly called a *W-2*. This form is

provided annually to each employee as well as to the Social Security Administration. The W-2 shown below is based on John T. McGrath's employee's earnings record shown in Exhibit 6.



22222 Void ☐

a Employee's social security number 381-48-9120

For Official Use Only ▶
OMB No. 1545-0008

b Employer identification number (EIN) 61-8436524

c Employer's name, address, and ZIP code
McDermott Supply Co.
415 5th Ave. So.
Dubuque, IA 52736-0142

d Control number

e Employee's first name and initial: John T.
Last name: McGrath
Suff.

1830 4th St.
Clinton, IA 52732-6142

f Employee's address and ZIP code

1 Wages, tips, other compensation: 100,500.00

2 Federal income tax withheld: 21,387.65

3 Social security wages: 100,500.00

4 Social security tax withheld: 6,030.00

5 Medicare wages and tips: 100,500.00

6 Medicare tax withheld: 1,507.50

7 Social security tips

8 Allocated tips

9 Advance EIC payment

10 Dependent care benefits

11 Nonqualified plans

12a See instructions for box 12

13 Statutory employee ☐ Retirement plan ☐ Third-party sick pay ☐

12b

14 Other

12c

12d

15 State: IA Employer's state ID number

16 State wages, tips, etc.

17 State income tax

18 Local wages, tips, etc.

19 Local income tax

20 Locality name: Dubuque

Form **W-2** **Wage and Tax Statement** 2011

Department of the Treasury—Internal Revenue Service
For Privacy Act and Paperwork Reduction Act Notice, see back of Copy D.
Cat. No. 10134D

Copy A For Social Security Administration — Send this entire page with Form W-3 to the Social Security Administration; photocopies are **not** acceptable.

Do Not Cut, Fold, or Staple Forms on This Page — Do Not Cut, Fold, or Staple Forms on This Page

Payroll Checks

Companies may pay employees, especially part-time employees, by issuing *payroll checks*. Each check includes a detachable statement showing how the net pay was computed. Exhibit 7, on page 504, illustrates a payroll check for John T. McGrath.

Most companies issuing payroll checks use a special payroll bank account. In such cases, payroll is processed as follows:

1. The total net pay for the period is determined from the payroll register.
2. The company authorizes an electronic funds transfer (EFT) from its regular bank account to the special payroll bank account for the total net pay.
3. Individual payroll checks are written from the payroll account.
4. The numbers of the payroll checks are inserted in the payroll register.

An advantage of using a separate payroll bank account is that reconciling the bank statements is simplified. In addition, a payroll bank account establishes control over payroll checks and, thus, prevents their theft or misuse.

Many companies use electronic funds transfer to pay their employees. In such cases, each pay period an employee's net pay is deposited directly into the employee checking account. Later, employees receive a payroll statement summarizing how the net pay was computed.

Payroll System Diagram

The inputs into a payroll system may be classified as:

1. Constants, which are data that remain unchanged from payroll to payroll.
   Examples: Employee names, social security numbers, marital status, number of income tax withholding allowances, rates of pay, tax rates, and withholding tables.
2. Variables, which are data that change from payroll to payroll.
   Examples: Number of hours or days worked for each employee, accrued days of sick leave, vacation credits, total earnings to date, and total taxes withheld.

EXHIBIT 6

Employee's Earnings Record

John T. McGrath
1830 4th St.
Clinton, IA 52732-6142
PHONE: 555-3148

SINGLE
NUMBER OF WITHHOLDING ALLOWANCES: 1
PAY RATE: $1,360.00 Per Week

OCCUPATION: Salesperson
EQUIVALENT HOURLY RATE: $34

			Earnings				
	Period Ending	Total Hours	Regular Earnings	Overtime Earnings	Total Earnings	Total	
42	SEPT. 27	53	1,360.00	663.00	2,023.00	75,565.00	42
43	THIRD QUARTER		17,680.00	7,605.00	25,285.00		43
44	OCT. 4	51	1,360.00	561.00	1,921.00	77,486.00	44
50	NOV. 15	50	1,360.00	510.00	1,870.00	89,382.00	50
51	NOV. 22	53	1,360.00	663.00	2,023.00	91,405.00	51
52	NOV. 29	47	1,360.00	357.00	1,717.00	93,122.00	52
53	DEC. 6	53	1,360.00	663.00	2,023.00	95,145.00	53
54	DEC.13	52	1,360.00	612.00	1,972.00	97,117.00	54
55	DEC. 20	51	1,360.00	561.00	1,921.00	99,038.00	55
56	DEC. 27	42	1,360.00	102.00	1,462.00	100,500.00	56
57	FOURTH QUARTER		17,680.00	7,255.00	24,935.00		57
58	YEARLY TOTAL		70,720.00	29,780.00	100,500.00		58

In a computerized accounting system, constants are stored within a payroll file. The variables are input each pay period by a payroll clerk. In some systems, employees swipe their identification (ID) cards when they report for and leave work. In such cases, the hours worked by each employee are automatically updated.

A computerized payroll system also maintains electronic versions of the payroll register and employee earnings records. Payroll system outputs, such as payroll checks, EFTs, and tax records, are automatically produced each pay period.

Internal Controls for Payroll Systems

The cash payment controls described in Chapter 8, *Sarbanes-Oxley, Internal Control, and Cash*, also apply to payrolls. Some examples of payroll controls include the following:

1. If a check-signing machine is used, blank payroll checks and access to the machine should be restricted to prevent their theft or misuse.
2. The hiring and firing of employees should be properly authorized and approved in writing.
3. All changes in pay rates should be properly authorized and approved in writing.

EXHIBIT 6 **(Concluded)**

SOC. SEC. NO.: 381-48-9120 **EMPLOYEE NO.: 814**

DATE OF BIRTH: February 15, 1982

DATE EMPLOYMENT TERMINATED:

	Deductions							Paid		
	Social Security Tax	Medicare Tax	Federal Income Tax	Retirement Savings		Other	Total	Net Amount	Check No.	
42	121.38	30.35	429.83	20.00			601.56	1,421.44	6175	42
43	1,517.10	379.28	5,391.71	260.00	UF	40.00	7,588.09	17,696.91		43
44	115.26	28.82	401.27	20.00			565.35	1,355.65	6225	44
50	112.20	28.05	386.99	20.00			547.24	1,322.76	6530	50
51	121.38	30.35	429.83	20.00			601.56	1,421.44	6582	51
52	103.02	25.76	344.15	20.00			492.93	1,224.07	6640	52
53	121.38	30.35	429.83	20.00	UF	5.00	606.56	1,416.44	6688	53
54	118.32	29.58	415.55	20.00			583.45	1,388.55	6743	54
55	115.26	28.82	401.27	20.00			565.35	1,355.65	6801	55
56	87.72	21.93	258.90	20.00	UF	5.00	393.55	1,068.45	6860	56
57	1,496.10	374.03	5,293.71	260.00	UF	15.00	7,438.84	17,496.16		57
58	6,030.00	1,507.50	21,387.65	1,040.00	UF	100.00	30,065.15	70,434.85		58

4. Employees should be observed when arriving for work to verify that employees are "checking in" for work only once and only for themselves. Employees may "check in" for work by using a time card or by swiping their employee ID card.
5. Payroll checks should be distributed by someone other than employee supervisors.
6. A special payroll bank account should be used.

Integrity, Objectivity, and Ethics in Business

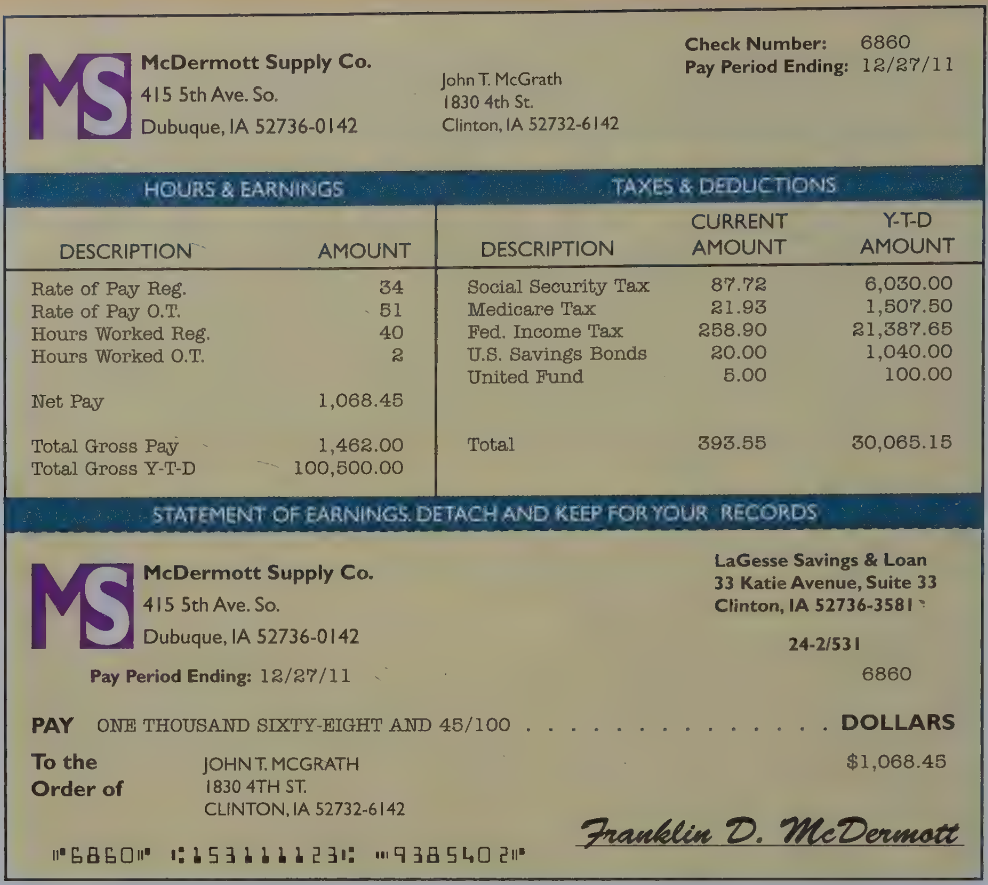
$8 MILLION FOR 18 MINUTES OF WORK

Computer system controls can be very important in issuing payroll checks. In one case, a Detroit schoolteacher was paid $4,015,625 after deducting $3,884,375 in payroll deductions for 18 minutes of overtime work. The error was caused by a computer glitch when the teacher's employee identification number was substituted incorrectly in the "hourly wage" field and wasn't caught by the payroll software. After six days, the error was discovered and the money was returned. "One of the things that came with (the software) is a fail-safe that prevents that. It doesn't work," a financial officer said. The district has since installed a program to flag any paycheck exceeding $10,000.

Source: Associated Press, September 27, 2002.

EXHIBIT 7

Payroll Check



McDermott Supply Co.
415 5th Ave. So.
Dubuque, IA 52736-0142

John T. McGrath
1830 4th St.
Clinton, IA 52732-6142

Check Number: 6860
Pay Period Ending: 12/27/11

HOURS & EARNINGS

DESCRIPTION	AMOUNT
Rate of Pay Reg.	34
Rate of Pay O.T.	51
Hours Worked Reg.	40
Hours Worked O.T.	2
Net Pay	1,068.45
Total Gross Pay	1,462.00
Total Gross Y-T-D	100,500.00

TAXES & DEDUCTIONS

DESCRIPTION	CURRENT AMOUNT	Y-T-D AMOUNT
Social Security Tax	87.72	6,030.00
Medicare Tax	21.93	1,507.50
Fed. Income Tax	258.90	21,387.65
U.S. Savings Bonds	20.00	1,040.00
United Fund	5.00	100.00
Total	393.55	30,065.15

STATEMENT OF EARNINGS. DETACH AND KEEP FOR YOUR RECORDS

McDermott Supply Co.
415 5th Ave. So.
Dubuque, IA 52736-0142

Pay Period Ending: 12/27/11

LaGesse Savings & Loan
33 Katie Avenue, Suite 33
Clinton, IA 52736-3581

24-2/531

6860

PAY ONE THOUSAND SIXTY-EIGHT AND 45/100 . . . . **DOLLARS**

$1,068.45

To the Order of JOHN T. MCGRATH
1830 4TH ST.
CLINTON, IA 52732-6142

Franklin D. McDermott

⑈6860⑈ ⑆153111123⑆ ⑈938540 2⑈

OBJ. 4 Journalize entries for employee fringe benefits, including vacation pay and pensions.

Employees' Fringe Benefits

Many companies provide their employees benefits in addition to salary and wages earned. Such **fringe benefits** may include vacation, medical, and retirement benefits.

The cost of employee fringe benefits is recorded as an expense by the employer. To match revenues and expenses, the estimated cost of fringe benefits is recorded as an expense during the period in which the employees earn the benefits.

Vacation Pay

Note:
Vacation pay becomes the employer's liability as the employee earns vacation rights.

Most employers provide employees vacations, sometimes called *compensated absences*. The liability to pay for employee vacations could be accrued as a liability at the end of each pay period. However, many companies wait and record an adjusting entry for accrued vacation at the end of the year.

To illustrate, assume that employees earn one day of vacation for each month worked. The estimated vacation pay for the year ending December 31 is $325,000. The adjusting entry for the accrued vacation is shown below.

Dec.	31	Vacation Pay Expense		325,000	
		Vacation Pay Payable			325,000
		Accrued vacation pay for the year.			

Employees may be required to take all their vacation time within one year. In such cases, any accrued vacation pay will be paid within one year. Thus, the vacation pay payable is reported as a current liability on the balance sheet. If employees are allowed to accumulate their vacation pay, the estimated vacation pay payable that will *not* be taken within a year is reported as a long-term liability.

When employees take vacations, the liability for vacation pay is decreased by debiting Vacation Pay Payable. Salaries or Wages Payable and the other related payroll accounts for taxes and withholdings are credited.

Pensions

A **pension** is a cash payment to retired employees. Pension rights are accrued by employees as they work, based on the employer's pension plan. Two basic types of pension plans are:

1. Defined contribution plan
2. Defined benefit plan

In a **defined contribution plan**, the company invests contributions on behalf of the employee during the employee's working years. Normally, the employee and employer contribute to the plan. The employee's pension depends on the total contributions and the investment returns earned on those contributions.

One of the more popular defined contribution plans is the 401k plan. Under this plan, employees contribute a portion of their gross pay to investments, such as mutual funds. A 401k plan offers employees two advantages.

1. The employee contribution is deducted before taxes.
2. The contributions and related earnings are not taxed until withdrawn at retirement.

In most cases, the employer matches some portion of the employee's contribution. The employer's cost is debited to *Pension Expense*. To illustrate, assume that Heaven Scent Perfumes Company contributes 10% of employee monthly salaries to an employee 401k plan. Assuming $500,000 of monthly salaries, the journal entry to record the monthly contribution is shown below.

Dec.	31	Pension Expense		50,000	
		Cash			50,000
		Contributed 10% of monthly salaries			
		to pension plan.			

In a **defined benefit plan**, the company pays the employee a fixed annual pension based on a formula. The formula is normally based on such factors as the employee's years of service, age, and past salary.

Annual Pension = 1.5% × Years of Service × Highest 3-Year Average Salary

In a defined benefit plan, the employer is obligated to pay for (fund) the employee's future pension benefits. As a result, many companies are replacing their defined benefit plans with defined contribution plans.

The pension cost of a defined benefit plan is debited to *Pension Expense*. Cash is credited for the amount contributed (funded) by the employer. Any unfunded amount is credited to *Unfunded Pension Liability*.

To illustrate, assume that the defined benefit plan of Hinkle Co. requires an annual pension cost of $80,000. This annual contribution is based on estimates of Hinkle's future pension liabilities. On December 31, Hinkle Co. pays $60,000 to

the pension fund. The entry to record the payment and unfunded liability is shown below.

Dec.	31	Pension Expense		80,000	
		Cash			60,000
		Unfunded Pension Liability			20,000
		Annual pension cost and contribution.			

If the unfunded pension liability is to be paid within one year, it is reported as a current liability on the balance sheet. Any portion of the unfunded pension liability that will be paid beyond one year is a long-term liability.

The accounting for pensions is complex due to the uncertainties of estimating future pension liabilities. These estimates depend on such factors as employee life expectancies, employee turnover, expected employee compensation levels, and investment income on pension contributions. Additional accounting and disclosures related to pensions are covered in advanced accounting courses.

Example Exercise 11-6 Vacation Pay and Pension Benefits

OBJ 4

Manfield Services Company provides its employees vacation benefits and a defined contribution pension plan. Employees earned vacation pay of $44,000 for the period. The pension plan requires a contribution to the plan administrator equal to 8% of employee salaries. Salaries were $450,000 during the period.

Provide the journal entry for the (a) vacation pay and (b) pension benefit.

Follow My Example 11-6

a.	Vacation Pay Expense	44,000	
	Vacation Pay Payable		44,000
	Vacation pay accrued for the period.		
b.	Pension Expense	36,000	
	Cash		36,000
	Pension contribution, 8% of $450,000 salary.		

Practice Exercises: **PE 11-6A, PE 11-6B**

Postretirement Benefits Other Than Pensions

Employees may earn rights to other postretirement benefits from their employer. Such benefits may include dental care, eye care, medical care, life insurance, tuition assistance, tax services, and legal services.

The accounting for other postretirement benefits is similar to that of defined benefit pension plans. The estimate of the annual benefits expense is recorded by debiting *Postretirement Benefits Expense*. If the benefits are fully funded, Cash is credited for the same amount. If the benefits are not fully funded, a postretirement benefits plan liability account is also credited.

The financial statements should disclose the nature of the postretirement benefit liabilities. These disclosures are usually included as notes to the financial statements. Additional accounting and disclosures for postretirement benefits are covered in advanced accounting courses.

Current Liabilities on the Balance Sheet

Accounts payable, the current portion of long-term debt, notes payable, and any other debts that are due within one year are reported as current liabilities on the balance sheet. The balance sheet presentation of current liabilities for Mornin' Joe is as shown on the next page.

Mornin' Joe
Balance Sheet
December 31, 2012

Liabilities		
Current liabilities:		
Accounts payable	$133,000	
Notes payable (current portion)	200,000	
Salaries and wages payable	42,000	
Payroll taxes payable	16,400	
Interest payable	40,000	
Total current liabilities		$431,400

Business Connection

GENERAL MOTORS PENSION PROBLEMS

In June 2009, General Motors Company, the world's second-largest automaker, filed for bankruptcy. The company's troubles began decades earlier when the company agreed to provide employees with large pension benefits instead of giving them wage increases. While this strategy was initially successful, by the mid-1990s large numbers of employees began to retire, and the increasing pension costs began to put a financial strain on the company. In 2003, the company issued $18.5 billion in debt to fund its growing unfunded pension liability, but this only provided a temporary fix. From 1993 to 2007, General Motors spent $103 billion on pension and health care benefits for retirees, and the company had 4.61 retired union employees for every one active union employee. By June 2009, the combination of growing pension obligations and deteriorating sales forced the company into bankruptcy.

Source: R. Lowenstein, "Siphoning GM's Future," *The New York Times*, July 10, 2008.

Contingent Liabilities

OBJ 5 Describe the accounting treatment for contingent liabilities and journalize entries for product warranties.

Some liabilities may arise from past transactions if certain events occur in the future. These *potential* liabilities are called **contingent liabilities**.

The accounting for contingent liabilities depends on the following two factors:

1. Likelihood of occurring: Probable, reasonably possible, or remote
2. Measurement: Estimable or not estimable

The likelihood that the event creating the liability occurring is classified as *probable*, *reasonably possible*, or *remote*. The ability to estimate the potential liability is classified as *estimable* or *not estimable*.

Probable and Estimable

If a contingent liability is *probable* and the amount of the liability can be *reasonably estimated*, it is recorded and disclosed. The liability is recorded by debiting an expense and crediting a liability.

To illustrate, assume that during June a company sold a product for $60,000 that includes a 36-month warranty for repairs. The average cost of repairs over the warranty period is 5% of the sales price. The entry to record the estimated product warranty expense for June is as shown below.

June	30	Product Warranty Expense		3,000	
		Product Warranty Payable			3,000
		Warranty expense for June, 5% × $60,000.			

The preceding entry records warranty expense in the same period in which the sale is recorded. In this way, warranty expense is matched with the related revenue (sales).

If the product is repaired under warranty, the repair costs are recorded by debiting *Product Warranty Payable* and crediting *Cash, Supplies, Wages Payable*, or other appropriate accounts. Thus, if a $200 part is replaced under warranty on August 16, the entry is as follows:

The estimated costs of warranty work on new car sales are a contingent liability for Ford Motor Company.

Aug.	16	Product Warranty Payable		200	
		Supplies			200
		Replaced defective part under warranty.			

Example Exercise 11-7 Estimated Warranty Liability

OBJ. 5

Cook-Rite Co. sold $140,000 of kitchen appliances during August under a six-month warranty. The cost to repair defects under the warranty is estimated at 6% of the sales price. On September 11, a customer required a $200 part replacement plus $90 of labor under the warranty.

Provide the journal entry for (a) the estimated warranty expense on August 31 and (b) the September 11 warranty work.

Follow My Example 11-7

a.	Product Warranty Expense	8,400	
	Product Warranty Payable		8,400
	To record warranty expense for August, 6% × $140,000.		
b.	Product Warranty Payable	290	
	Supplies		200
	Wages Payable		90
	Replaced defective part under warranty.		

Practice Exercises: **PE 11-7A, PE 11-7B**

Probable and Not Estimable

A contingent liability may be probable, but cannot be estimated. In this case, the contingent liability is disclosed in the notes to the financial statements. For example, a company may have accidentally polluted a local river by dumping waste products. At the end of the period, the cost of the cleanup and any fines may not be able to be estimated.

Reasonably Possible

A contingent liability may be only possible. For example, a company may have lost a lawsuit for infringing on another company's patent rights. However, the verdict is under appeal and the company's lawyers feel that the verdict will be reversed or significantly reduced. In this case, the contingent liability is disclosed in the notes to the financial statements.

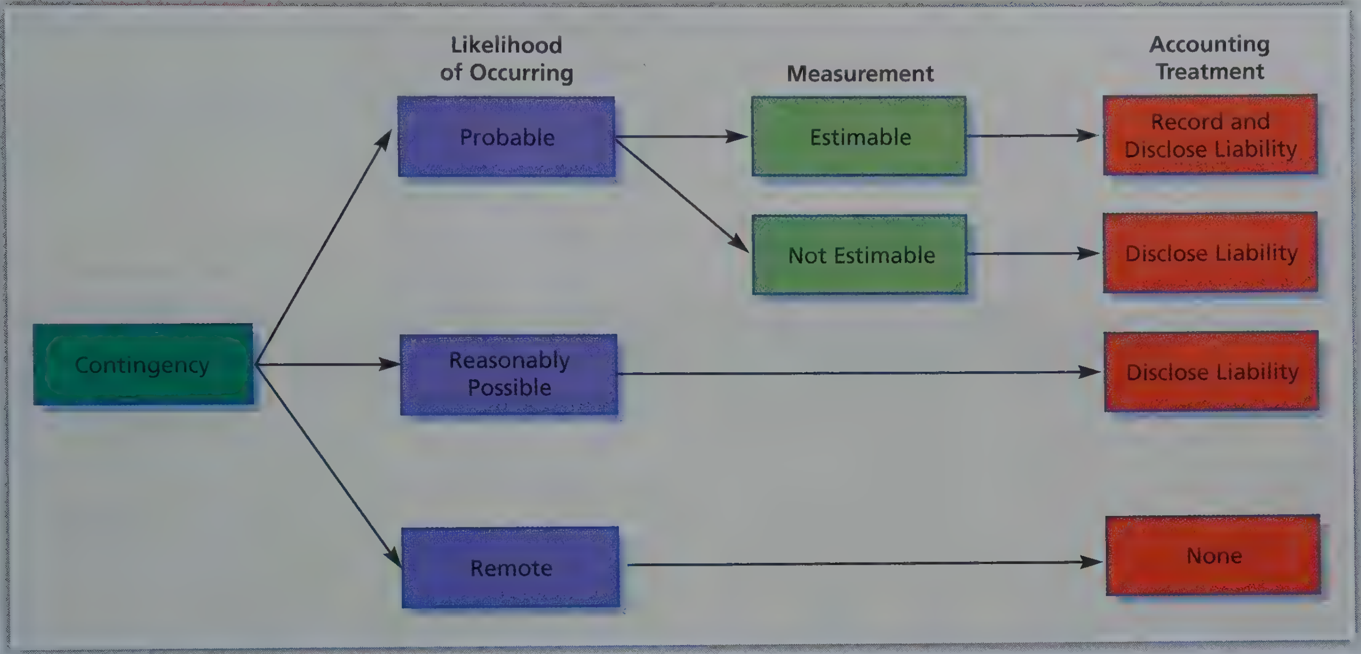
Remote

A contingent liability may be remote. For example, a ski resort may be sued for injuries incurred by skiers. In most cases, the courts have found that a skier accepts the risk of injury when participating in the activity. Thus, unless the ski resort is grossly negligent, the resort will not incur a liability for ski injuries. In such cases, no disclosure needs to be made in the notes to the financial statements.

The accounting treatment of contingent liabilities is summarized in Exhibit 8.

Common examples of contingent liabilities disclosed in notes to the financial statements are litigation, environmental matters, guarantees, and contingencies from the sale of receivables.

EXHIBIT 8 **Accounting Treatment of Contingent Liabilities**



An example of a contingent liability disclosure from a recent annual report of Google Inc. is shown below.

> *We have also had copyright claims filed against us alleging that features of certain of our products and services, including Google Web Search, Google News, Google Video, Google Image Search, Google Book Search and YouTube, infringe their rights. Adverse results in these lawsuits may include awards of substantial monetary damages, costly royalty or licensing agreements or orders preventing us from offering certain functionalities, and may also result in a change in our business practices, which could result in a loss of revenue for us or otherwise harm our business. . . .*
>
> *Although the results of litigation and claims cannot be predicted with certainty, we believe that the final outcome of the matters discussed above will not have a material adverse effect on our business . . .*

Professional judgment is necessary in distinguishing between classes of contingent liabilities. This is especially the case when distinguishing between probable and reasonably possible contingent liabilities.

Financial Analysis and Interpretation: Quick Ratio

OBJ. 6 Describe and illustrate the use of the quick ratio in analyzing a company's ability to pay its current liabilities.

Current position analysis helps creditors evaluate a company's ability to pay its current liabilities. This analysis is based on the following three measures:

1. Working capital
2. Current ratio
3. Quick ratio

Working capital and the current ratio were discussed in Chapter 4, and are computed as follows:

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

While these two measures can be used to evaluate a company's ability to pay its current liabilities, they do not provide insight into the company's ability to pay their current liabilities within a short period of time. This is because some current assets, such as inventory, cannot be converted into cash as quickly as other current assets, such as cash and accounts receivable.

The **quick ratio** overcomes this limitation by measuring the "instant" debt-paying ability of a company and is computed as follows:

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

Quick assets are cash and other current assets that can be easily converted to cash. This normally includes cash, temporary investments, and accounts receivable. To illustrate, consider the following data for TechSolutions, Inc., at the end of 2011:

Current assets:	
Cash	$2,020
Temporary investments	3,400
Accounts receivable	1,600
Inventory	2,000
Other current assets	160
Total current assets	$9,180
Current liabilities:	
Accounts payable	$3,000
Other current liabilities	2,400
Total current liabilities	$5,400
Working capital (current assets – current liabilities)	$3,780
Current ratio (current assets/current liabilities)	1.7

The quick ratio for TechSolutions, Inc., is computed as follows:

$$\text{Quick Ratio} = \frac{\$2{,}020 + \$3{,}400 + \$1{,}600}{\$5{,}400} = 1.3$$

The quick ratio of 1.3 indicates that the company has more than enough quick assets to pay its current liabilities in a short period of time. A quick ratio below 1.0 would indicate that the company does not have enough quick assets to cover its current liabilities.

Like the current ratio, the quick ratio is particularly useful in making comparisons across companies. To illustrate, the following selected balance sheet data (excluding ratios) were taken from the 2008 financial statements of Panera Bread Company and Starbucks Corporation (in thousands):

	Panera Bread	Starbucks
Current assets:		
Cash and cash equivalents	$ 74,710	$ 599,800
Temporary investments	2,400	66,300
Accounts receivable	35,079	557,600
Inventory	11,959	664,900
Other current assets	14,265	147,200
Total current assets	$138,413	$2,035,800
Current liabilities:		
Accounts payable	$114,014	$1,192,100
Other current liabilities	—	388,900
Total current liabilities	$114,014	$1,581,000
Working capital (current assets – current liabilities)	$ 24,399	$ 454,800
Current ratio (current assets/current liabilities)	1.2	1.3
Quick ratio (quick assets/current liabilities)*	1.0	0.8

*The quick ratio for each company is computed as follows:
Panera Bread: ($74,710 + $2,400 + $35,079)/$114,014 = 1.0
Starbucks: ($599,800 + $66,300 + $557,600)/$1,581,000 = 0.8

Starbucks is larger than Panera Bread and has over 18 times the amount of working capital. Such size differences make working capital comparisons between companies difficult. In contrast, the current and quick ratios provide better comparisons across companies. In this example, Panera Bread has a slightly lower current ratio than Starbucks. However, Starbucks' 0.8 quick ratio reveals that it does not have enough quick assets to cover its current liabilities, while Panera Bread's quick ratio of 1.0 indicates that the company has just enough quick assets to meet its current liabilities.

Example Exercise 11-8 Quick Ratio

OBJ. 6

Sayer Company reported the following current assets and current liabilities for the years ended December 31, 2012 and 2011:

	2012	2011
Cash	$1,250	$1,000
Temporary investments	1,925	1,650
Accounts receivable	1,775	1,350
Inventory	1,900	1,700
Accounts payable	2,750	2,500

a. Compute the quick ratio for 2012 and 2011.

b. Interpret the company's quick ratio across the two time periods.

Follow My Example 11-8

a. December 31, 2012:
Quick Ratio = Quick Assets/Current Liabilities
Quick Ratio = ($1,250 + $1,925 + $1,775)/$2,750
Quick Ratio = 1.8

December 31, 2011:
Quick Ratio = Quick Assets/Current Liabilities
Quick Ratio = ($1,000 + $1,650 + $1,350)/$2,500
Quick Ratio = 1.6

b. The quick ratio of Sayer Company has improved from 1.6 in 2011 to 1.8 in 2012. This increase is the result of a large increase in the three types of quick assets (cash, temporary investments, and accounts receivable) compared to a relatively smaller increase in the current liability, accounts payable.

Practice Exercises: **PE 11-8A, PE 11-8B**

At a Glance 11

OBJ. 1 Describe and illustrate current liabilities related to accounts payable, current portion of long-term debt, and notes payable.

Key Points Current liabilities are obligations that are to be paid out of current assets and are due within a short time, usually within one year. The three primary types of current liabilities are accounts payable, notes payable, and current portion of long-term debt.

Learning Outcomes	Example Exercises	Practice Exercises
• Identify and define the most frequently reported current liabilities on the balance sheet.		
• Determine the interest from interest-bearing and discounted notes payable.	EE11-1	PE11-1A, 11-1B

OBJ. 2 Determine employer liabilities for payroll, including liabilities arising from employee earnings and deductions from earnings.

Key Points An employer's liability for payroll is determined from employee total earnings, including overtime pay. From this amount, employee deductions are subtracted to arrive at the net pay to be paid to each employee. Most employers also incur liabilities for payroll taxes, such as social security tax, Medicare tax, federal unemployment compensation tax, and state unemployment compensation tax.

Learning Outcomes	Example Exercises	Practice Exercises
• Compute the federal withholding tax from a wage bracket withholding table.	EE11-2	PE11-2A, 11-2B
• Compute employee net pay, including deductions for social security and Medicare tax.	EE11-3	PE11-3A, 11-3B

OBJ. 3 Describe payroll accounting systems that use a payroll register, employee earnings records, and a general journal.

Key Points The payroll register is used in assembling and summarizing the data needed for each payroll period. The payroll register is supported by a detailed payroll record for each employee, called an *employee's earnings record*.

Learning Outcomes	Example Exercises	Practice Exercises
• Journalize the employee's earnings, net pay, and payroll liabilities from the payroll register.	EE11-4	PE11-4A, 11-4B
• Journalize the payroll tax expense.	EE11-5	PE11-5A, 11-5B
• Describe elements of a payroll system, including the employee's earnings record, payroll checks, and internal controls.		

OBJ. 4 Journalize entries for employee fringe benefits, including vacation pay and pensions.

Key Points Fringe benefits are expenses of the period in which the employees earn the benefits. Fringe benefits are recorded by debiting an expense account and crediting a liability account.

Learning Outcomes	Example Exercises	Practice Exercises
• Journalize vacation pay.	EE11-6	PE11-6A, 11-6B
• Distinguish and journalize defined contribution and defined benefit pension plans.	EE11-6	PE11-6A, 11-6B

OBJ. 5 Describe the accounting treatment for contingent liabilities and journalize entries for product warranties.

Key Points A contingent liability is a potential obligation that results from a past transaction but depends on a future event. The accounting for contingent liabilities is summarized in Exhibit 8.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the accounting for contingent liabilities.		
• Journalize estimated warranty obligations and services granted under warranty.	EE11-7	PE11-7A, 11-7B

OBJ. 6 Describe and illustrate the use of the quick ratio in analyzing a company's ability to pay its current liabilities.

Key Points The quick ratio is a measure of a company's ability to pay current liabilities within a short period of time. The quick ratio is computed by dividing quick assets by current liabilities. Quick assets include cash, temporary investments, accounts receivable, and other current assets that can be easily converted into cash. A quick ratio exceeding 1.0 is usually desirable.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the quick ratio.		
• Compute and evaluate the quick ratio.	EE11-8	PE11-8A, 11-8B

Key Terms

contingent liabilities (507)
current position analysis (509)
defined benefit plan (505)
defined contribution plan (505)
employee's earnings record (500)
FICA tax (494)
fringe benefits (504)
gross pay (492)
net pay (492)
payroll (491)
payroll register (498)
pension (505)
quick assets (510)
quick ratio (510)

Illustrative Problem

Selected transactions of Taylor Company, completed during the fiscal year ended December 31, are as follows:

Mar. 1. Purchased merchandise on account from Kelvin Co., $20,000.

Apr. 10. Issued a 60-day, 12% note for $20,000 to Kelvin Co. on account.

June 9. Paid Kelvin Co. the amount owed on the note of April 10.

Aug. 1. Issued a $50,000, 90-day note to Harold Co. in exchange for a building. Harold Co. discounted the note at 15%.

Oct. 30. Paid Harold Co. the amount due on the note of August 1.

Dec. 27. Journalized the entry to record the biweekly payroll. A summary of the payroll record follows:

Salary distribution:		
Sales	$63,400	
Officers	36,600	
Office	10,000	$110,000
Deductions:		
Social security tax	$ 6,600	
Medicare tax	1,650	
Federal income tax withheld	17,600	
State income tax withheld	4,950	
Savings bond deductions	850	
Medical insurance deductions	1,120	32,770
Net amount		$ 77,230

27. Journalized the entry to record payroll taxes for social security and Medicare from the biweekly payroll.

30. Issued a check in payment of liabilities for employees' federal income tax of $17,600, social security tax of $13,200, and Medicare tax of $3,300.

Dec. 31. Issued a check for $9,500 to the pension fund trustee to fully fund the pension cost for December.

31. Journalized an entry to record the employees' accrued vacation pay, $36,100.

31. Journalized an entry to record the estimated accrued product warranty liability, $37,240.

Instructions

Journalize the preceding transactions.

Solution

Mar.	1	Merchandise Inventory		20,000	
		Accounts Payable—Kelvin Co.			20,000
Apr.	10	Accounts Payable—Kelvin Co.		20,000	
		Notes Payable			20,000
June	9	Notes Payable		20,000	
		Interest Expense		400	
		Cash			20,400
Aug.	1	Building		48,125	
		Interest Expense		1,875	
		Notes Payable			50,000
Oct.	30	Notes Payable		50,000	
		Cash			50,000
Dec.	27	Sales Salaries Expense		63,400	
		Officers Salaries Expense		36,600	
		Office Salaries Expense		10,000	
		Social Security Tax Payable			6,600
		Medicare Tax Payable			1,650
		Employees Federal Income Tax Payable			17,600
		Employees State Income Tax Payable			4,950
		Bond Deductions Payable			850
		Medical Insurance Payable			1,120
		Salaries Payable			77,230
	27	Payroll Tax Expense		8,250	
		Social Security Tax Payable			6,600
		Medicare Tax Payable			1,650
	30	Employees Federal Income Tax Payable		17,600	
		Social Security Tax Payable		13,200	
		Medicare Tax Payable		3,300	
		Cash			34,100
	31	Pension Expense		9,500	
		Cash			9,500
		Fund pension cost.			
	31	Vacation Pay Expense		36,100	
		Vacation Pay Payable			36,100
		Accrue vacation pay.			
	31	Product Warranty Expense		37,240	
		Product Warranty Payable			37,240
		Accrue warranty expense.			

Discussion Questions

1. Does a discounted note payable provide credit without interest? Discuss.
2. Employees are subject to taxes withheld from their paychecks.
   a. List the federal taxes withheld from most employee paychecks.
   b. Give the title of the accounts credited by amounts withheld.
3. Why are deductions from employees' earnings classified as liabilities for the employer?
4. For each of the following payroll-related taxes, indicate whether they generally apply to (a) employees only, (b) employers only, or (c) both employees and employers:
   1. Federal income tax
   2. Medicare tax
   3. Social security tax
   4. Federal unemployment compensation tax
   5. State unemployment compensation tax
5. What are the principal reasons for using a special payroll checking account?
6. Explain how a payroll system that is properly designed and operated tends to ensure that wages paid are based on hours actually worked.
7. To match revenues and expenses properly, should the expense for employee vacation pay be recorded in the period during which the vacation privilege is earned or during the period in which the vacation is taken? Discuss.
8. Identify several factors that influence the future pension obligation of an employer under a defined benefit pension plan.
9. When should the liability associated with a product warranty be recorded? Discuss.
10. General Motors Corporation reported $7.0 billion of product warranties in the Current Liabilities section of a recent balance sheet. How would costs of repairing a defective product be recorded?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 1 **EE 11-1** *p. 491*

PE 11-1A Proceeds from notes payable

On September 1, Rongo Co. issued a 45-day note with a face amount of $80,000 to Simone Co. for merchandise inventory.

a. Determine the proceeds of the note, assuming the note carries an interest rate of 8%.

b. Determine the proceeds of the note, assuming the note is discounted at 8%.

OBJ. 1 **EE 11-1** *p. 491*

PE 11-1B Proceeds from notes payable

On February 1, Tectronic Co. issued a 60-day note with a face amount of $120,000 to Tokai Warehouse Co. for cash.

a. Determine the proceeds of the note, assuming the note carries an interest rate of 9%.

b. Determine the proceeds of the note, assuming the note is discounted at 9%.

OBJ. 2 **EE 11-2** *p. 493*

PE 11-2A Federal income tax withholding

Bob Tappert's weekly gross earnings for the present week were $1,600. Tappert has one exemption. Using the wage bracket withholding table in Exhibit 3 with a $70 standard withholding allowance for each exemption, what is Tappert's federal income tax withholding?

OBJ. 2 **EE 11-2** *p. 493*

PE 11-2B Federal income tax withholding

John Wolfe's weekly gross earnings for the present week were $2,200. Wolfe has two exemptions. Using the wage bracket withholding table in Exhibit 3 with a $70 standard withholding allowance for each exemption, what is Wolfe's federal income tax withholding?

OBJ. 2 **EE 11-3** *p. 495*

PE 11-3A Employee net pay

Bob Tappert's weekly gross earnings for the week ending December 18 were $1,600, and his federal income tax withholding was $296.16. Assuming the social security rate is 6% and Medicare is 1.5% of all earnings, what is Tappert's net pay?

OBJ. 2 **EE 11-3** *p. 495*

PE 11-3B Employee net pay

John Wolfe's weekly gross earnings for the week ending September 5 were $2,200, and his federal income tax withholding was $444.88. Assuming the social security rate is 6% and Medicare is 1.5% of all earnings, what is Wolfe's net pay?

OBJ. 3 **EE 11-4** *p. 499*

PE 11-4A Journalize period payroll

The payroll register of Gregory Communications Co. indicates $4,080 of social security withheld and $1,020 of Medicare tax withheld on total salaries of $68,000 for the period. Federal withholding for the period totaled $13,464.

Provide the journal entry for the period's payroll.

OBJ. 3 **EE 11-4** *p. 499*

PE 11-4B Journalize period payroll

The payroll register of Russert Construction Co. indicates $18,000 of social security withheld and $4,500 of Medicare tax withheld on total salaries of $300,000 for the period.

Retirement savings withheld from employee paychecks were $18,000 for the period. Federal withholding for the period totaled $59,400.

Provide the journal entry for the period's payroll.

OBJ. 3 **EE 11-5** p. 500

PE 11-5A Journalize payroll tax

The payroll register of Gregory Communications Co. indicates $4,080 of social security withheld and $1,020 of Medicare tax withheld on total salaries of $68,000 for the period. Assume earnings subject to state and federal unemployment compensation taxes are $12,500, at the federal rate of 0.8% and the state rate of 5.4%.

Provide the journal entry to record the payroll tax expense for the period.

OBJ. 3 **EE 11-5** p. 500

PE 11-5B Journalize payroll tax

The payroll register of Russert Construction Co. indicates $18,000 of social security withheld and $4,500 of Medicare tax withheld on total salaries of $300,000 for the period. Assume earnings subject to state and federal unemployment compensation taxes are $13,000, at the federal rate of 0.8% and the state rate of 5.4%.

Provide the journal entry to record the payroll tax expense for the period.

OBJ. 4 **EE 11-6** p. 506

PE 11-6A Vacation pay and pension benefits

Lutes Company provides its employees with vacation benefits and a defined contribution pension plan. Employees earned vacation pay of $25,500 for the period. The pension plan requires a contribution to the plan administrator equal to 8% of employee salaries. Salaries were $340,000 during the period.

Provide the journal entry for the (a) vacation pay and (b) pension benefit.

OBJ. 4 **EE 11-6** p. 506

PE 11-6B Vacation pay and pension benefits

Wang Equipment Company provides its employees vacation benefits and a defined benefit pension plan. Employees earned vacation pay of $42,000 for the period. The pension formula calculated a pension cost of $273,000. Only $210,000 was contributed to the pension plan administrator.

Provide the journal entry for the (a) vacation pay and (b) pension benefit.

OBJ. 5 **EE 11-7** p. 508

PE 11-7A Estimated warranty liability

Zinn Co. sold $500,000 of equipment during May under a one-year warranty. The cost to repair defects under the warranty is estimated at 5% of the sales price. On October 10, a customer required a $100 part replacement, plus $65 of labor under the warranty.

Provide the journal entry for (a) the estimated warranty expense on May 31 and (b) the October 10 warranty work.

OBJ. 5 **EE 11-7** p. 508

PE 11-7B Estimated warranty liability

Caldwell Industries sold $410,000 of consumer electronics during August under a nine-month warranty. The cost to repair defects under the warranty is estimated at 4% of the sales price. On October 15, a customer was given $110 cash under terms of the warranty.

Provide the journal entry for (a) the estimated warranty expense on August 31 and (b) the October 15 cash payment.

OBJ. 6 **EE 11-8** p. 511

FAI

PE 11-8A Quick ratio

Grangel Company reported the following current assets and liabilities for December 31, 2012 and 2011:

Learning Objectives *Example Exercises*

	Dec. 31, 2012	Dec. 31, 2011
Cash	$ 620	$ 560
Temporary investments	1,330	1,250
Accounts receivable	850	830
Inventory	1,000	1,000
Accounts payable	2,800	2,200

a. Compute the quick ratio for December 31, 2012 and 2011.

b. Interpret the company's quick ratio. Is the quick ratio improving or declining?

OBJ. 6 **EE 11-8** *p. 511*

FAI

PE 11-8B Quick ratio

Tappert Company reported the following current assets and liabilities for December 31, 2012 and 2011:

	Dec. 31, 2012	Dec. 31, 2011
Cash	$ 990	$ 860
Temporary investments	1,910	1,500
Accounts receivable	1,600	1,280
Inventory	2,000	1,400
Accounts payable	3,000	2,800

a. Compute the quick ratio for December 31, 2012 and 2011.

b. Interpret the company's quick ratio. Is the quick ratio improving or declining?

Exercises

OBJ. 1

✓ Total current liabilities, $782,500

EX 11-1 Current liabilities

New Wave Co. sold 10,000 annual subscriptions of *Game Life* for $75 during December 2012. These new subscribers will receive monthly issues, beginning in January 2013. In addition, the business had taxable income of $550,000 during the first calendar quarter of 2013. The federal tax rate is 40%. A quarterly tax payment will be made on April 7, 2013.

Prepare the Current Liabilities section of the balance sheet for New Wave Co. on March 31, 2013.

OBJ. 1

EX 11-2 Entries for discounting notes payable

TKR Enterprises issues a 30-day note for $570,000 to Sweeney Industries for merchandise inventory. Sweeney Industries discounts the note at 8%.

a. Journalize TKR Enterprises' entries to record:

   1. the issuance of the note.
   2. the payment of the note at maturity.

b. Journalize Sweeney Industries' entries to record:

   1. the receipt of the note.
   2. the receipt of the payment of the note at maturity.

OBJ. 1

EX 11-3 Evaluate alternative notes

A borrower has two alternatives for a loan: (1) issue a $180,000, 45-day, 10% note or (2) issue a $180,000, 45-day note that the creditor discounts at 10%.

a. Calculate the amount of the interest expense for each option.

b. Determine the proceeds received by the borrower in each situation.

c. Which alternative is more favorable to the borrower? Explain.

OBJ. 1

EX 11-4 Entries for notes payable

A business issued a 45-day, 6% note for $80,000 to a creditor on account. Journalize the entries to record (a) the issuance of the note and (b) the payment of the note at maturity, including interest.

OBJ. 1

EX 11-5 Entries for discounted note payable

A business issued a 30-day note for $72,000 to a creditor on account. The note was discounted at 7%. Journalize the entries to record (a) the issuance of the note and (b) the payment of the note at maturity.

OBJ. 1

EX 11-6 Fixed asset purchases with note

On June 30, Beahm Management Company purchased land for $250,000 and a building for $350,000, paying $300,000 cash and issuing an 8% note for the balance, secured by a mortgage on the property. The terms of the note provide for 20 semiannual payments of $15,000 on the principal plus the interest accrued from the date of the preceding payment. Journalize the entry to record (a) the transaction on June 30, (b) the payment of the first installment on December 31, and (c) the payment of the second installment the following June 30.

OBJ. 1

EX 11-7 Current portion of long-term debt

Burger King Holdings, Inc., the operator and franchisor of Burger King restaurants, reported the following information about its long-term debt in the notes to a recent financial statement:

Long-term debt is comprised of the following:

	June 30	
	2009	2008
Notes payable	$823,100,000	$876,200,000
Less current portion	(67,500,000)	(7,400,000)
Long-term debt	$755,600,000	$868,800,000

a. How much of the notes payable was disclosed as a current liability on the June 30, 2009, balance sheet?

b. How much did the total current liabilities change between 2008 and 2009 as a result of the current portion of long-term debt?

c. If Burger King did not issue additional notes payable during 2010, what would be the total notes payable on June 30, 2010?

OBJ. 2

✔ b. Net pay, 2,725.75

EX 11-8 Calculate payroll

An employee earns $60 per hour and 1.5 times that rate for all hours in excess of 40 hours per week. Assume that the employee worked 55 hours during the week, Assume further that the social security tax rate was 6.0%, the Medicare tax rate was 1.5%, and federal income tax to be withheld was $743.

a. Determine the gross pay for the week.

b. Determine the net pay for the week.

OBJ. 2

✔ Administrator net pay, $1,776.92

EX 11-9 Calculate payroll

Donohue Professional Services has three employees—a consultant, a computer programmer, and an administrator. The following payroll information is available for each employee:

	Consultant	Computer Programmer	Administrator
Regular earnings rate	$2,800 per week	$30 per hour	$42 per hour
Overtime earnings rate	Not applicable	1.5 times hourly rate	2 times hourly rate
Number of withholding allowances	3	2	1

For the current pay period, the computer programmer worked 60 hours and the administrator worked 50 hours. The federal income tax withheld for all three employees, who are single, can be determined from the wage bracket withholding table in Exhibit 3 in the chapter. Assume further that the social security tax rate was 6.0%, the Medicare tax rate was 1.5%, and one withholding allowance is $70.

Determine the gross pay and the net pay for each of the three employees for the current pay period.

OBJ. 2, 3

✔ a. (3) Total earnings, $900,000

EX 11-10 Summary payroll data

In the following summary of data for a payroll period, some amounts have been intentionally omitted:

Earnings:	
1. At regular rate	?
2. At overtime rate	$135,000
3. Total earnings	?
Deductions:	
4. Social security tax	54,000
5. Medicare tax	13,500
6. Income tax withheld	225,000
7. Medical insurance	31,500
8. Union dues	?
9. Total deductions	335,250
10. Net amount paid	564,750
Accounts debited:	
11. Factory Wages	475,000
12. Sales Salaries	?
13. Office Salaries	200,000

a. Calculate the amounts omitted in lines (1), (3), (8), and (12).

b. Journalize the entry to record the payroll accrual.

c. Journalize the entry to record the payment of the payroll.

OBJ. 3

✔ a. $85,000

EX 11-11 Payroll tax entries

According to a summary of the payroll of Brooks Industries Co., $1,100,000 was subject to the 6.0% social security tax and the 1.5% Medicare tax. Also, $50,000 was subject to state and federal unemployment taxes.

a. Calculate the employer's payroll taxes, using the following rates: state unemployment, 4.2%; federal unemployment, 0.8%.

b. Journalize the entry to record the accrual of payroll taxes.

OBJ. 3

EX 11-12 Payroll entries

The payroll register for Robinson Company for the week ended November 18 indicated the following:

Salaries	$1,300,000
Social security tax withheld	61,100
Medicare tax withheld	19,500
Federal income tax withheld	260,000

In addition, state and federal unemployment taxes were calculated at the rate of 5.2% and 0.8%, respectively, on $240,000 of salaries.

a. Journalize the entry to record the payroll for the week of November 18.

b. Journalize the entry to record the payroll tax expense incurred for the week of November 18.

OBJ. 3

EX 11-13 Payroll entries

Faber Company had gross wages of $110,000 during the week ended June 17. The amount of wages subject to social security tax was $110,000, while the amount of wages subject to federal and state unemployment taxes was $15,000. Tax rates are as follows:

Social security	6.0%
Medicare	1.5%
State unemployment	5.4%
Federal unemployment	0.8%

The total amount withheld from employee wages for federal taxes was $22,000.

a. Journalize the entry to record the payroll for the week of June 17.

b. Journalize the entry to record the payroll tax expense incurred for the week of June 17.

OBJ. 3

EX 11-14 Payroll internal control procedures

Big Dave's Pizza is a pizza restaurant specializing in the sale of pizza by the slice. The store employs 10 full-time and 15 part-time workers. The store's weekly payroll averages $5,600 for all 25 workers.

Big Dave's Pizza uses a personal computer to assist in preparing paychecks. Each week, the store's accountant collects employee time cards and enters the hours worked into the payroll program. The payroll program calculates each employee's pay and prints a paycheck. The accountant uses a check-signing machine to sign the paychecks. Next, the restaurant's owner authorizes the transfer of funds from the restaurant's regular bank account to the payroll account.

For the week of June 11, the accountant accidentally recorded 200 hours worked instead of 40 hours for one of the full-time employees.

Does Big Dave's Pizza have internal controls in place to catch this error? If so, how will this error be detected?

OBJ. 3

EX 11-15 Internal control procedures

Matt's Bikes is a small manufacturer of specialty bicycles. The company employs 18 production workers and four administrative persons. The following procedures are used to process the company's weekly payroll:

a. Whenever an employee receives a pay raise, the supervisor must fill out a wage adjustment form, which is signed by the company president. This form is used to change the employee's wage rate in the payroll system.

b. All employees are required to record their hours worked by clocking in and out on a time clock. Employees must clock out for lunch break. Due to congestion around the time clock area at lunch time, management has not objected to having one employee clock in and out for an entire department.

c. Whenever a salaried employee is terminated, Personnel authorizes Payroll to remove the employee from the payroll system. However, this procedure is not required when an hourly worker is terminated. Hourly employees only receive a paycheck if their time cards show hours worked. The computer automatically drops an employee from the payroll system when that employee has six consecutive weeks with no hours worked.

d. Paychecks are signed by using a check-signing machine. This machine is located in the main office so that it can be easily accessed by anyone needing a check signed.

e. Matt's Bikes maintains a separate checking account for payroll checks. Each week, the total net pay for all employees is transferred from the company's regular bank account to the payroll account.

State whether each of the procedures is appropriate or inappropriate after considering the principles of internal control. If a procedure is inappropriate, describe the appropriate procedure.

OBJ. 4

EX 11-16 Accrued vacation pay

A business provides its employees with varying amounts of vacation per year, depending on the length of employment. The estimated amount of the current year's vacation pay is $61,200.

a. Journalize the adjusting entry required on January 31, the end of the first month of the current year, to record the accrued vacation pay.

b. How is the vacation pay reported on the company's balance sheet? When is this amount removed from the company's balance sheet?

OBJ. 4

EX 11-17 Pension plan entries

Wren Co. operates a chain of gift shops. The company maintains a defined contribution pension plan for its employees. The plan requires quarterly installments to be paid to the funding agent, Whims Funds, by the fifteenth of the month following the end of each quarter. Assume that the pension cost is $141,500 for the quarter ended March 31.

a. Journalize the entries to record the accrued pension liability on March 31 and the payment to the funding agent on April 15.

b. How does a defined contribution plan differ from a defined benefit plan?

OBJ. 4

EX 11-18 Defined benefit pension plan terms

In a recent year's financial statements, Procter & Gamble showed an unfunded pension liability of $3,706 million and a periodic pension cost of $341 million.

Explain the meaning of the $3,706 million unfunded pension liability and the $341 million periodic pension cost.

OBJ. 5

EX 11-19 Accrued product warranty

Parker Products Co. warrants its products for one year. The estimated product warranty is 3% of sales. Assume that sales were $442,000 for September. In October, a customer received warranty repairs requiring $110 of parts and $86 of labor.

a. Journalize the adjusting entry required at September 30, the end of the first month of the current fiscal year, to record the accrued product warranty.

b. Journalize the entry to record the warranty work provided in October.

OBJ. 5

EX 11-20 Accrued product warranty

General Motors Corporation disclosed estimated product warranty payable for comparative years as follows:

	(in millions)	
	12/31/08	12/31/07
Current estimated product warranty payable	$3,792	$4,655
Noncurrent estimated product warranty payable	4,699	4,960
Total	$8,491	$9,615

GM's sales were $177,594 million in 2007 and decreased to $147,732 million in 2008. Assume that the total paid on warranty claims during 2008 was $5,000 million.

a. Why are short- and long-term estimated warranty liabilities separately disclosed?

b. Provide the journal entry for the 2008 product warranty expense.

c. What two conditions must be met in order for a product warranty liability to be reported in the financial statements?

OBJ. 5

EX 11-21 Contingent liabilities

Several months ago, Reiltz Industries, Inc. experienced a hazardous materials spill at one of its plants. As a result, the Environmental Protection Agency (EPA) fined the company $570,000. The company is contesting the fine. In addition, an employee is seeking $560,000 in damages related to the spill. Lastly, a homeowner has sued the company for $364,000. The homeowner lives 35 miles from the plant, but believes that the incident has reduced the home's resale value by $364,000.

Reiltz's legal counsel believes that it is probable that the EPA fine will stand. In addition, counsel indicates that an out-of-court settlement of $238,000 has recently been reached with the employee. The final papers will be signed next week. Counsel believes that the homeowner's case is much weaker and will be decided in favor of Reiltz. Other litigation related to the spill is possible, but the damage amounts are uncertain.

a. Journalize the contingent liabilities associated with the hazardous materials spill. Use the account "Damage Awards and Fines" to recognize the expense for the period.

b. Prepare a note disclosure relating to this incident.

OBJ. 6

✓ a. 2012: 1.0

FAI

EX 11-22 Quick ratio

CCB Co. had the following current assets and liabilities for two comparative years:

	Dec. 31, 2012	Dec. 31, 2011
Current assets:		
Cash	$ 506,000	$ 524,000
Accounts receivable	354,000	364,000
Inventory	240,000	200,000
Total current assets	$1,100,000	$1,088,000
Current liabilities:		
Current portion of long-term debt	$ 160,000	$ 120,000
Accounts payable	265,000	220,000
Accrued and other current liabilities	435,000	400,000
Total current liabilities	$ 860,000	$ 740,000

a. Determine the quick ratio for December 31, 2012 and 2011.

b. Interpret the change in the quick ratio between the two balance sheet dates.

OBJ. 6

✓ a. Apple, 2.4

FAI

EX 11-23 Quick ratio

The current assets and current liabilities for Apple Inc. and Dell Inc. are shown as follows at the end of a recent fiscal period:

	Apple Inc. (in millions) Sept. 26, 2009	Dell Inc. (in millions) Jan. 29, 2010
Current assets:		
Cash and cash equivalents	$ 5,263	$10,635
Short-term investments	18,201	373
Accounts receivable	4,496	8,543
Inventories	455	1,051
Other current assets*	3,140	3,643
Total current assets	$31,555	$24,245
Current liabilities:		
Accounts payable	$ 9,453	$15,257
Accrued and other current liabilities	2,053	3,703
Total current liabilities	$11,506	$18,960

*These represent prepaid expense and other nonquick current assets.

a. Determine the quick ratio for both companies.

b. Interpret the quick ratio difference between the two companies.

Problems Series A

OBJ. 1, 5

PR 11-1A Liability transactions

The following items were selected from among the transactions completed by Isis Co. during the current year:

Feb 15. Purchased merchandise on account from Viper Co., $260,000, terms n/30.

Mar. 17. Issued a 45-day, 5% note for $260,000 to Viper Co., on account.

May 1. Paid Viper Co. the amount owed on the note of March 17.

June 15. Borrowed $300,000 from Ima Bank, issuing a 60-day, 9% note.

July 21. Purchased tools by issuing a $240,000, 60-day note to Charger Co., which discounted the note at the rate of 7%.

Aug. 14. Paid Ima Bank the interest due on the note of June 15 and renewed the loan by issuing a new 30-day, 10% note for $300,000. (Journalize both the debit and credit to the notes payable account.)

Sept. 13. Paid Ima Bank the amount due on the note of August 14.

19. Paid Charger Co. the amount due on the note of July 21.

Dec. 1. Purchased office equipment from Challenger Co. for $235,000, paying $35,000 and issuing a series of ten 7.5% notes for $20,000 each, coming due at 30-day intervals.

12. Settled a product liability lawsuit with a customer for $121,600, payable in January. Isis accrued the loss in a litigation claims payable account.

31. Paid the amount due Challenger Co. on the first note in the series issued on December 1.

Instructions

1. Journalize the transactions.
2. Journalize the adjusting entry for each of the following accrued expenses at the end of the current year: (a) product warranty cost, $26,240; (b) interest on the nine remaining notes owed to Challenger Co.

OBJ. 2, 3

✔ 1. (b) Dr. Payroll Tax Expense, $42,465

PR 11-2A Entries for payroll and payroll taxes

The following information about the payroll for the week ended December 30 was obtained from the records of Arnsperger Equipment Co.:

Salaries:		Deductions:	
Sales salaries	$270,000	Income tax withheld	$ 95,920
Warehouse salaries	142,000	Social security tax withheld	32,700
Office salaries	133,000	Medicare tax withheld	8,175
	$545,000	U.S. savings bonds	11,990
		Group insurance	9,810
			$158,595

Tax rates assumed:

Social security, 6%
Medicare, 1.5%
State unemployment (employer only), 4.5%
Federal unemployment (employer only), 0.8%

Instructions

1. Assuming that the payroll for the last week of the year is to be paid on December 31, journalize the following entries:
   a. December 30, to record the payroll.
   b. December 30, to record the employer's payroll taxes on the payroll to be paid on December 31. Of the total payroll for the last week of the year, $30,000 is subject to unemployment compensation taxes.

(continued)

2. Assuming that the payroll for the last week of the year is to be paid on January 5 of the following fiscal year, journalize the following entries:
   a. December 30, to record the payroll.
   b. January 5, to record the employer's payroll taxes on the payroll to be paid on January 5. Since it is a new fiscal year, all $545,000 in salaries is subject to unemployment compensation taxes.

OBJ. 2, 3

✔ 2. (e) $32,274

PR 11-3A Wage and tax statement data on employer FICA tax

Courtside Concepts Co. began business on January 2, 2011. Salaries were paid to employees on the last day of each month, and social security tax, Medicare tax, and federal income tax were withheld in the required amounts. An employee who is hired in the middle of the month receives half the monthly salary for that month. All required payroll tax reports were filed, and the correct amount of payroll taxes was remitted by the company for the calendar year. Early in 2012, before the Wage and Tax Statements (Form W-2) could be prepared for distribution to employees and for filing with the Social Security Administration, the employees' earnings records were inadvertently destroyed.

None of the employees resigned or were discharged during the year, and there were no changes in salary rates. The social security tax was withheld at the rate of 6.0% and Medicare tax at the rate of 1.5% on salary. Data on dates of employment, salary rates, and employees' income taxes withheld, which are summarized as follows, were obtained from personnel records and payroll records:

Employee	Date First Employed	Monthly Salary	Monthly Income Tax Withheld
Garnett	Jan. 2	$ 4,400	$ 706
Kidd	Oct. 1	7,200	1,442
J. O'Neal	Apr. 16	3,600	506
Bryant	Nov. 1	3,000	356
S. O'Neal	Jan. 16	12,800	3,012
Marbury	Dec. 1	5,000	856
Duncan	Feb. 1	11,200	2,564

Instructions

1. Calculate the amounts to be reported on each employee's Wage and Tax Statement (Form W-2) for 2011, arranging the data in the following form:

Employee	Gross Earnings	Federal Income Tax Withheld	Social Security Tax Withheld	Medicare Tax Withheld

2. Calculate the following employer payroll taxes for the year: (a) social security; (b) Medicare; (c) state unemployment compensation at 4.6% on the first $10,000 of each employee's earnings; (d) federal unemployment compensation at 0.8% on the first $10,000 of each employee's earnings; (e) total.

OBJ. 2, 3

✔ 3. Dr. Payroll Tax Expense, $1,002.93

PR 11-4A Payroll register

If the working papers correlating with this textbook are not used, omit Problem 11-4A. The payroll register for Knapp Co. for the week ended September 14, 2012, is presented in the working papers.

Instructions

1. Journalize the entry to record the payroll for the week.
2. Journalize the entry to record the issuance of the checks to employees.
3. Journalize the entry to record the employer's payroll taxes for the week. Assume the following tax rates: state unemployment, 3.6%; federal unemployment, 0.8%. Of the earnings, $2,000 is subject to unemployment taxes.
4. Journalize the entry to record a check issued on September 17 to Fourth National Bank in payment of employees' income taxes, $2,062.17, social security taxes, $1,463.88, and Medicare taxes, $365.98.

OBJ. 2, 3

✔ 1. Total net amount payable, $11,180.93

PR 11-5A Payroll register

The following data for Throwback Industries, Inc. relate to the payroll for the week ended December 7, 2012:

Employee	Hours Worked	Hourly Rate	Weekly Salary	Federal Income Tax	U.S. Savings Bonds
Blanda	48	$44.00		$526.24	$ 45
Dawson	42	38.00		351.31	50
Fouts	44	46.00		402.04	55
Griese	36	32.00		241.92	65
Namath	45	40.00		399.00	0
Marino			$2,200	528.00	44
Staubach	35	29.00		152.25	110
Starr			2,450	539.00	102
Unitas	41	38.00		315.40	0

Employees Marino and Starr are office staff, and all of the other employees are sales personnel. All sales personnel are paid 1½ times the regular rate for all hours in excess of 40 hours per week. The social security tax rate is 6.0%, and Medicare tax is 1.5% of each employee's annual earnings. The next payroll check to be used is No. 625.

Instructions

1. Prepare a payroll register for Throwback Industries, Inc. for the week ended December 7, 2012. Use the following columns for the payroll register: Name, Total Hours, Regular Earnings, Overtime Earnings, Total Earnings, Social Security Tax, Medicare Tax, Federal Income Tax, U.S. Savings Bonds, Total Deductions, Net Pay, Ck. No., Sales Salaries Expense, and Office Salaries Expense.
2. Journalize the entry to record the payroll sales for the week.

OBJ. 2, 3, 4

PR 11-6A Payroll accounts and year-end entries

The following accounts, with the balances indicated, appear in the ledger of Quinn Co. on December 1 of the current year:

311 Salaries Payable	—	318 Bond Deductions Payable	$ 4,200
312 Social Security Tax Payable	$10,830	319 Medical Insurance Payable	33,000
313 Medicare Tax Payable	2,850	511 Operations Salaries Expense	1,150,000
314 Employees Federal Income Tax Payable	17,575	611 Officers Salaries Expense	750,000
315 Employees State Income Tax Payable	17,100	612 Office Salaries Expense	190,000
316 State Unemployment Tax Payable	1,800	619 Payroll Tax Expense	163,680
317 Federal Unemployment Tax Payable	600		

The following transactions relating to payroll, payroll deductions, and payroll taxes occurred during December:

Dec. 2. Issued Check No. 210 for $4,200 to Ace Bank to purchase U.S. savings bonds for employees.

5. Issued Check No. 211 to Ace Bank for $31,255 in payment of $10,830 of social security tax, $2,850 of Medicare tax, and $17,575 of employees' federal income tax due.

16. Journalized the entry to record the biweekly payroll. A summary of the payroll record follows:

Salary distribution:		
Operations	$52,200	
Officers	34,100	
Office	8,650	$94,950
Deductions:		
Social security tax	$ 5,697	
Medicare tax	1,424	
Federal income tax withheld	17,566	
State income tax withheld	4,273	
Savings bond deductions	2,100	
Medical insurance deductions	5,500	36,560
Net amount		$58,390

Dec. 16. Issued Check No. 220 in payment of the net amount of the biweekly payroll.

16. Journalized the entry to record payroll taxes on employees' earnings of December 16: social security tax, \$5,697; Medicare tax, \$1,424; state unemployment tax, \$450; federal unemployment tax, \$150.

19. Issued Check No. 224 to Ace Bank for \$31,048, in payment of \$11,394 of social security tax, \$2,848 of Medicare tax, and \$17,566 of employees' federal income tax due.

19. Issued Check No. 229 to Blackwood Insurance Company for \$33,000, in payment of the semiannual premium on the group medical insurance policy.

30. Journalized the entry to record the biweekly payroll. A summary of the payroll record follows:

Salary distribution:		
Operations	\$51,400	
Officers	34,100	
Office	8,400	\$93,900
Deductions:		
Social security tax	\$ 5,634	
Medicare tax	1,409	
Federal income tax withheld	17,184	
State income tax withheld	4,226	
Savings bond deductions	2,100	30,553
Net amount		\$63,347

30. Issued Check No. 341 in payment of the net amount of the biweekly payroll.

30. Journalized the entry to record payroll taxes on employees' earnings of December 30: social security tax, \$5,634; Medicare tax, \$1,409; state unemployment tax, \$225; federal unemployment tax, \$75.

30. Issued Check No. 243 for \$25,599 to State Department of Revenue in payment of employees' state income tax due on December 31.

30. Issued Check No. 245 to Ace Bank for \$4,200 to purchase U.S. savings bonds for employees.

31. Paid \$50,000 to the employee pension plan. The annual pension cost is \$65,000. (Record both the payment and unfunded pension liability.)

Instructions

1. Journalize the transactions.
2. Journalize the following adjusting entries on December 31:
   a. Salaries accrued: operations salaries, \$5,140; officers salaries, \$3,410; office salaries, \$840. The payroll taxes are immaterial and are not accrued.
   b. Vacation pay, \$17,500.

Problems Series B

OBJ. 1, 5

PR 11-1B Liability transactions

The following items were selected from among the transactions completed by Javelin, Inc. during the current year:

Mar. 1. Borrowed \$80,000 from Nova Company, issuing a 30-day, 9% note for that amount.

15. Purchased equipment by issuing a \$180,000, 180-day note to Shelby Manufacturing Co., which discounted the note at the rate of 7.5%.

31. Paid Nova Company the interest due on the note of March 1 and renewed the loan by issuing a new 60-day, 9% note for \$80,000. (Record both the debit and credit to the notes payable account.)

May 30. Paid Nova Company the amount due on the note of March 31.

July 6. Purchased merchandise on account from Pacer Co., $56,000, terms, n/30.

Aug. 5. Issued a 45-day, 8% note for $56,000 to Pacer Co., on account.

Sept. 11. Paid Shelby Manufacturing Co. the amount due on the note of March 15.

19. Paid Pacer Co. the amount owed on the note of August 5.

Nov. 16. Purchased store equipment from Gremlin Co. for $190,000, paying $40,000 and issuing a series of fifteen 6% notes for $10,000 each, coming due at 30-day intervals.

Dec. 16. Paid the amount due Gremlin Co. on the first note in the series issued on November 16.

21. Settled a personal injury lawsuit with a customer for $55,250, to be paid in January. Javelin, Inc. accrued the loss in a litigation claims payable account.

Instructions

1. Journalize the transactions.
2. Journalize the adjusting entry for each of the following accrued expenses at the end of the current year:
   a. Product warranty cost, $13,520.
   b. Interest on the 14 remaining notes owed to Gremlin Co.

OBJ. 2, 3

✔ 1. (b) Dr. Payroll Tax Expense, $67,248

PR 11-2B Entries for payroll and payroll taxes

The following information about the payroll for the week ended December 30 was obtained from the records of Dart Co.:

Salaries:	
Sales salaries	$546,000
Warehouse salaries	116,000
Office salaries	218,000
	$880,000

Deductions:	
Income tax withheld	$172,480
Social security tax withheld	52,800
Medicare tax withheld	13,200
U.S. savings bonds	26,400
Group insurance	39,600
	$304,480

Tax rates assumed:
Social security, 6%
Medicare, 1.5%
State unemployment (employer only), 4.0%
Federal unemployment (employer only), 0.8%

Instructions

1. Assuming that the payroll for the last week of the year is to be paid on December 31, journalize the following entries:
   a. December 30, to record the payroll.
   b. December 30, to record the employer's payroll taxes on the payroll to be paid on December 31. Of the total payroll for the last week of the year, $26,000 is subject to unemployment compensation taxes.
2. Assuming that the payroll for the last week of the year is to be paid on January 4 of the following fiscal year, journalize the following entries:
   a. December 30, to record the payroll.
   b. January 4, to record the employer's payroll taxes on the payroll to be paid on January 4. Since it is a new fiscal year, all $880,000 in salaries is subject to unemployment compensation taxes.

OBJ. 2, 3

✔ 2. (e) $23,977.00

PR 11-3B Wage and tax statement data and employer FICA tax

Diamond Industries, Inc., began business on January 2, 2011. Salaries were paid to employees on the last day of each month, and social security tax, Medicare tax, and federal income tax were withheld in the required amounts. An employee who is hired in the middle of the month receives half the monthly salary for that month. All required payroll tax reports were filed, and the correct amount of payroll taxes was remitted by the company for the calendar year. Early in 2012, before the Wage and Tax Statements

(Form W-2) could be prepared for distribution to employees and for filing with the Social Security Administration, the employees' earnings records were inadvertently destroyed.

None of the employees resigned or were discharged during the year, and there were no changes in salary rates. The social security tax was withheld at the rate of 6.0% and Medicare tax at the rate of 1.5% on salary. Data on dates of employment, salary rates, and employees' income taxes withheld, which are summarized as follows, were obtained from personnel records and payroll records:

Employee	Date First Employed	Monthly Salary	Monthly Income Tax Withheld
Beltran	Jan. 1	$ 4,300	$ 681
Jeter	Apr. 16	11,000	2,508
Lee	Aug. 1	7,800	1,612
Rodriguez	Nov. 16	3,000	356
Santana	Mar. 1	6,120	1,145
Ramirez	May 16	3,840	566
Ordonez	Dec. 1	4,000	606

Instructions

1. Calculate the amounts to be reported on each employee's Wage and Tax Statement (Form W-2) for 2011, arranging the data in the following form:

Employee	Gross Earnings	Federal Income Tax Withheld	Social Security Tax Withheld	Medicare Tax Withheld

2. Calculate the following employer payroll taxes for the year: (a) social security; (b) Medicare; (c) state unemployment compensation at 4.4% on the first $9,000 of each employee's earnings; (d) federal unemployment compensation at 0.8% on the first $9,000 of each employee's earnings; (e) total.

OBJ. 2, 3

✔ 3. Dr. Payroll Tax Expense, $1,188.61

PR 11-4B Payroll register

If the working papers correlating with this textbook are not used, omit Problem 11-4B.

The payroll register for Ritchie Manufacturing Co. for the week ended September 14, 2012, is presented in the working papers.

Instructions

1. Journalize the entry to record the payroll for the week.
2. Journalize the entry to record the issuance of the checks to employees.
3. Journalize the entry to record the employer's payroll taxes for the week. Assume the following tax rates: state unemployment, 3.4%; federal unemployment, 0.8%. Of the earnings, $2,200 is subject to unemployment taxes.
4. Journalize the entry to record a check issued on September 17 to Second National Bank in payment of employees' income taxes, $2,464.97, social security taxes, $1,753.92, and Medicare taxes, $438.50.

OBJ. 2, 3

✔ 1. Total net amount payable, $9,583.80

PR 11-5B Payroll register

The following data for Gridiron Industries, Inc., relate to the payroll for the week ended December 7, 2012:

Employee	Hours Worked	Hourly Rate	Weekly Salary	Federal Income Tax	U.S. Savings Bonds
Aikman	50	$26.00		$328.90	$45
Csonka			$3,400	731.00	0
Dickerson	35	28.00		186.20	38
Elway	44	34.00		328.44	30
Harris	38	22.00		175.56	45
Motley			2,000	480.00	68
Nagurski	45	26.00		185.25	0
Sanders	45	27.00		282.15	45
Swann	42	25.00		215.00	0

Employees Csonka and Motley are office staff, and all of the other employees are sales personnel. All sales personnel are paid 1½ times the regular rate for all hours in excess of 40 hours per week. The social security tax rate is 6.0% of each employee's annual earnings, and Medicare tax is 1.5% of each employee's annual earnings. The next payroll check to be used is No. 328.

Instructions

1. Prepare a payroll register for Gridiron Industries, Inc., for the week ended December 7, 2012. Use the following columns for the payroll register: Name, Total Hours, Regular Earnings, Overtime Earnings, Total Earnings, Social Security Tax, Medicare Tax, Federal Income Tax, U.S. Savings Bonds, Total Deductions, Net Pay, Ck. No., Sales Salaries Expense, and Office Salaries Expense.
2. Journalize the entry to record the payroll sales for the week.

OBJ. 2, 3, 4

GL GENERAL LEDGER

PR 11-6B Payroll accounts and year-end entries

The following accounts, with the balances indicated, appear in the ledger of Codigo Co. on December 1 of the current year:

111	Salaries Payable	—	118	Bond Deductions Payable	$ 2,520
112	Social Security Tax Payable	$ 6,847	119	Medical Insurance Payable	2,800
113	Medicare Tax Payable	1,763	411	Sales Salaries Expense	778,000
114	Employees Federal Income Tax Payable	10,873	511	Officers Salaries Expense	375,000
115	Employees State Income Tax Payable	9,874	611	Office Salaries Expense	140,000
116	State Unemployment Tax Payable	1,400	618	Payroll Tax Expense	104,610
117	Federal Unemployment Tax Payable	400			

The following transactions relating to payroll, payroll deductions, and payroll taxes occurred during December:

Dec. 1. Issued Check No. 615 to Canal Insurance Company for $2,800, in payment of the semiannual premium on the group medical insurance policy.

1. Issued Check No. 616 to Green Bank for $19,483, in payment for $6,847 of social security tax, $1,763 of Medicare tax, and $10,873 of employees' federal income tax due.

2. Issued Check No. 617 for $2,520 to Green Bank to purchase U.S. savings bonds for employees.

12. Journalized the entry to record the biweekly payroll. A summary of the payroll record follows:

Salary distribution:		
Sales	$35,300	
Officers	17,000	
Office	6,300	$58,600
Deductions:		
Social security tax	$ 3,516	
Medicare tax	879	
Federal income tax withheld	10,431	
State income tax withheld	2,637	
Savings bond deductions	1,260	
Medical insurance deductions	467	19,190
Net amount		$39,410

12. Issued Check No. 622 in payment of the net amount of the biweekly payroll.

12. Journalized the entry to record payroll taxes on employees' earnings of December 12: social security tax, $3,516; Medicare tax, $879; state unemployment tax, $350; federal unemployment tax, $100.

15. Issued Check No. 630 to Green Bank for $18,635, in payment for $7,032 of social security tax, $1,758 of Medicare tax, and $10,431 of employees' federal income tax due.

Dec. 26. Journalized the entry to record the biweekly payroll. A summary of the payroll record follows:

Salary distribution:		
Sales	$35,400	
Officers	17,250	
Office	6,400	$59,050
Deductions:		
Social security tax	$ 3,543	
Medicare tax	886	
Federal income tax withheld	10,511	
State income tax withheld	2,657	
Savings bond deductions	1,260	18,857
Net amount		$40,193

26. Issued Check No. 640 for the net amount of the biweekly payroll.

26. Journalized the entry to record payroll taxes on employees' earnings of December 26: social security tax, $3,543; Medicare tax, $886; state unemployment tax, $170; federal unemployment tax, $45.

30. Issued Check No. 651 for $15,168 to State Department of Revenue, in payment of employees' state income tax due on December 31.

30. Issued Check No. 652 to Green Bank for $2,520 to purchase U.S. savings bonds for employees.

31. Paid $61,600 to the employee pension plan. The annual pension cost is $72,800. (Record both the payment and the unfunded pension liability.)

Instructions

1. Journalize the transactions.
2. Journalize the following adjusting entries on December 31:
   a. Salaries accrued: sales salaries, $10,620; officers salaries, $5,175; office salaries, $1,920. The payroll taxes are immaterial and are not accrued.
   b. Vacation pay, $14,840.

Comprehensive Problem 3

✔ 5. Total assets, $2,563,840

Selected transactions completed by Gampfer Company during its first fiscal year ending December 31 were as follows:

Jan. 2. Issued a check to establish a petty cash fund of $3,200.

Mar. 14. Replenished the petty cash fund, based on the following summary of petty cash receipts: office supplies, $1,200; miscellaneous selling expense, $410; miscellaneous administrative expense, $620.

Apr. 21. Purchased $22,400 of merchandise on account, terms 1/10, n/30. The perpetual inventory system is used to account for inventory.

May 20. Paid the invoice of April 21 after the discount period had passed.

23. Received cash from daily cash sales for $15,120. The amount indicated by the cash register was $15,152.

June 15. Received a 60-day, 10% note for $127,500 on the Cady account.

Aug. 14. Received amount owed on June 15 note, plus interest at the maturity date.

18. Received $5,440 on the Yoder account and wrote off the remainder owed on a $6,400 accounts receivable balance. (The allowance method is used in accounting for uncollectible receivables.)

Sept. 9. Reinstated the Yoder account written off on August 18 and received $960 cash in full payment.

15. Purchased land by issuing a $480,000, 90-day note to Ace Development Co., which discounted it at 8%.

Oct. 17. Sold office equipment in exchange for $96,000 cash plus receipt of a $64,000, 90-day, 6% note. The equipment had a cost of $224,000 and accumulated depreciation of $44,800 as of October 17.

Nov. 30. Journalized the monthly payroll for November, based on the following data:

Salaries		Deductions	
Sales salaries	$ 96,640	Income tax withheld	$28,090
Office salaries	55,200	Social security tax withheld	9,110
	$151,840	Medicare tax withheld	2,278

Unemployment tax rates:	
State unemployment	4.0%
Federal unemployment	0.8%
Amount subject to unemployment taxes:	
State unemployment	$5,000
Federal unemployment	5,000

30. Journalized the employer's payroll taxes on the payroll.

Dec. 14. Journalized the payment of the September 15 note at maturity.

31. The pension cost for the year was $136,000, of which $99,840 was paid to the pension plan trustee.

Instructions

1. Journalize the selected transactions.
2. Based on the following data, prepare a bank reconciliation for December of the current year:
   a. Balance according to the bank statement at December 31, $202,240.
   b. Balance according to the ledger at December 31, $175,440.
   c. Checks outstanding at December 31, $48,960.
   d. Deposit in transit, not recorded by bank, $21,120.
   e. Bank debit memo for service charges, $540.
   f. A check for $11,520 in payment of an invoice was incorrectly recorded in the accounts as $11,020.
3. Based on the bank reconciliation prepared in (2), journalize the entry or entries to be made by Gampfer Company.
4. Based on the following selected data, journalize the adjusting entries as of December 31 of the current year:
   a. Estimated uncollectible accounts at December 31, $11,520, based on an aging of accounts receivable. The balance of Allowance for Doubtful Accounts at December 31 was $1,200 (debit).
   b. The physical inventory on December 31 indicated an inventory shrinkage of $2,360.
   c. Prepaid insurance expired during the year, $16,300.
   d. Office supplies used during the year, $2,800.
   e. Depreciation is computed as follows:

Asset	Cost	Residual Value	Acquisition Date	Useful Life in Years	Depreciation Method Used
Buildings	$650,000	$ 0	January 2	50	Double-declining-balance
Office Equip.	176,000	16,000	January 3	5	Straight-line
Store Equip.	80,000	8,000	July 1	10	Straight-line

   f. A patent costing $36,000 when acquired on January 2 has a remaining legal life of eight years and is expected to have value for six years.
   g. The cost of mineral rights was $390,000. Of the estimated deposit of 650,000 tons of ore, 38,400 tons were mined and sold during the year.

(Continued)

h. Vacation pay expense for December, $7,500.

i. A product warranty was granted beginning December 1 and covering a one-year period. The estimated cost is 3% of sales, which totaled $1,350,000 in December.

j. Interest was accrued on the note receivable received on October 17.

5. Based on the following information and the post-closing trial balance shown below, prepare a balance sheet in report form at December 31 of the current year.

The merchandise inventory is stated at cost by the LIFO method.
The product warranty payable is a current liability.

Vacation pay payable:

Current liability	$5,100
Long-term liability	2,400

The unfunded pension liability is a long-term liability.

Notes payable:

Current liability	$ 50,000
Long-term liability	450,000

Gampfer Company
Post-Closing Trial Balance
December 31, 2012

	Debit Balances	Credit Balances
Petty Cash	3,200	
Cash	174,400	
Notes Receivable	64,000	
Accounts Receivable	336,000	
Allowance for Doubtful Accounts		11,520
Merchandise Inventory	230,000	
Interest Receivable	800	
Prepaid Insurance	32,600	
Office Supplies	9,600	
Land	470,400	
Buildings	650,000	
Accumulated Depreciation—Buildings		26,000
Office Equipment	176,000	
Accumulated Depreciation—Office Equipment		32,000
Store Equipment	80,000	
Accumulated Depreciation—Store Equipment		3,600
Mineral Rights	390,000	
Accumulated Depletion		23,040
Patents	30,000	
Social Security Tax Payable		13,513
Medicare Tax Payable		3,378
Employees Federal Income Tax Payable		28,090
State Unemployment Tax Payable		40
Federal Unemployment Tax Payable		200
Salaries Payable		112,612
Accounts Payable		224,000
Interest Payable		20,207
Product Warranty Payable		40,500
Vacation Pay Payable		7,500
Unfunded Pension Liability		36,160
Notes Payable		500,000
J. Gampfer, Capital		1,564,640
	2,647,000	2,647,000

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA11-1 Computing employee net pay

JK Flowers Corporation has a single employee, S. Singh. Singh worked for 47 hours during the week, of which seven hours were overtime. Singh is paid $19.40 per hour. Overtime hours are paid at a rate of 150% of straight time. Additional information for Singh is as follows:

Federal income tax (weekly withholding)	$201.30
Retirement savings (weekly)	75.00
Earnings prior to payroll period	27,950

The social security tax rate is assumed to be 6% on all employee earnings. The Medicare rate is assumed to be 1.5% on all employee earnings.

a. Open the Excel file *SA11-1_2e.*

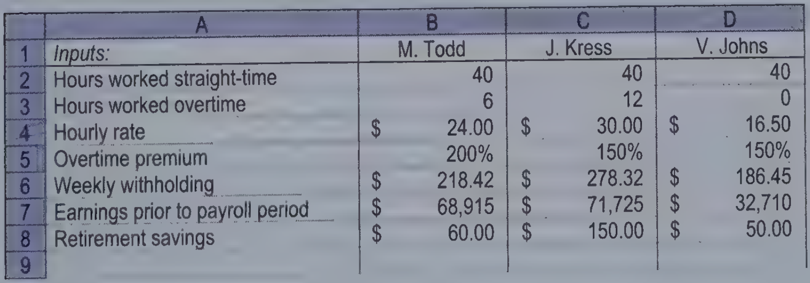
b. Prepare a spreadsheet to compute the weekly gross pay, deductions, and net pay for S. Singh.

c. When you have completed the pay calculations, perform a "save as," replacing the entire file name with the following:

SA11-1_2e[your first name initial]_[your last name]

SA11-2 Computing employee net pay, multiple employees

The Myatt Companies prepared the following weekly schedule for its three employees:



	A	B	C	D
1	*Inputs:*	M. Todd	J. Kress	V. Johns
2	Hours worked straight-time	40	40	40
3	Hours worked overtime	6	12	0
4	Hourly rate	$ 24.00	$ 30.00	$ 16.50
5	Overtime premium	200%	150%	150%
6	Weekly withholding	$ 218.42	$ 278.32	$ 186.45
7	Earnings prior to payroll period	$ 68,915	$ 71,725	$ 32,710
8	Retirement savings	$ 60.00	$ 150.00	$ 50.00
9				

The social security rate is assumed to be 6% on all employee annual earnings. The Medicare rate is assumed to be 1.5%.

a. Open the Excel file *SA11-2_2e.*

b. Prepare a spreadsheet to compute the weekly gross pay, deductions, and net pay for each employee.

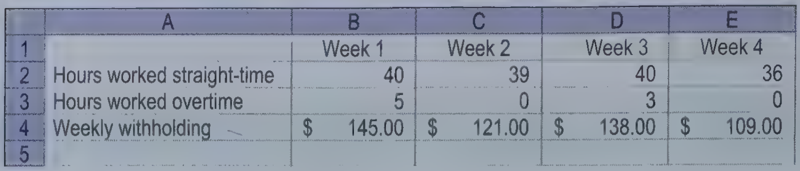
c. When you have completed the pay calculations, perform a "save as," replacing the entire file name with the following:

SA11-2_2e[your first name initial]_[your last name]

excel success

SA11-3 Computing employee net pay, multiple time periods

Repair-It-for-U has a single employee, Josh Reed, who has the following weekly payroll information for four weeks:



	A	B	C	D	E
1		Week 1	Week 2	Week 3	Week 4
2	Hours worked straight-time	40	39	40	36
3	Hours worked overtime	5	0	3	0
4	Weekly withholding	$ 145.00	$ 121.00	$ 138.00	$ 109.00
5					

Reed had a pay rate of $16 per hour and an overtime premium of 150%. The social security tax rate is assumed to be 6% of employee earnings. The Medicare tax rate is assumed to be 1.5% of employee earnings.

a. Open the Excel file *SA11-3_2e.*

b. Prepare a spreadsheet to compute the weekly gross pay, deductions, and net pay for each week.

c. When you have completed the pay calculations, perform a "save as," replacing the entire file name with the following:

SA11-3_2e[your first name initial]_[your last name]

Hondros/Newsmakers/Getty Images

Accounting for Partnerships and Limited Liability Companies

Razor USA, LLC

Most good ideas begin as the solution to a problem, such as with Gino Tsai. Gino's legs got tired as he walked around his Taiwanese bicycle factory. As a result, Gino spent five years designing what is now known as the Razor scooter. Little did he know that his new, lightweight foldable scooter would be used by people of all ages, as well as being an Xtreme sport for youth. Today the Razor scooter, along with other Razor products, are sold worldwide by **Razor USA, LLC**. The letters "LLC" stand for limited liability company. Unlike sole proprietorships illustrated in prior chapters, a LLC is a business form that normally has multiple owners.

The entity form chosen by a business has an important impact on the owners' legal liability, taxation, and ability to raise money. The four major forms of business entities discussed in this text are the proprietorship, partnership, limited liability company, and corporation. Proprietorships have been discussed in prior chapters. Partnerships and limited liability companies will be discussed in this chapter, and corporations will be introduced in the next chapter.

Learning Objectives

After studying this chapter, you should be able to:

Obj.		Example Exercises	Page
1	Describe the characteristics of proprietorships, partnerships, and limited liability companies.		
	Proprietorships, Partnerships, and Limited Liability Companies		
	Proprietorships		
	Partnerships		
	Limited Liability Companies		
	Comparing Proprietorships, Partnerships, and Limited Liability Companies		
2	Describe and illustrate the accounting for forming a partnership and for dividing the net income and net loss of a partnership.		
	Forming and Dividing Income of a Partnership		
	Forming a Partnership	EE 12-1	542
	Dividing Income	EE 12-2	545
3	Describe and illustrate the accounting for partner admission and withdrawal.		
	Partner Admission and Withdrawal		
	Admitting a Partner	EE 12-3	548
	Withdrawal of a Partner	EE 12-4	550
	Death of a Partner		
4	Describe and illustrate the accounting for liquidating a partnership.		
	Liquidating Partnerships		
	Gain on Realization		
	Loss on Realization	EE 12-5	555
	Loss on Realization—Capital Deficiency	EE 12-6	558
5	Prepare the statement of partnership equity.		
	Statement of Partnership Equity		
6	Analyze and interpret employee efficiency.		
	Financial Analysis and Interpretation: Revenue per Employee	EE 12-7	560

At a Glance 12 Page 560

OBJ. 1 Describe the characteristics of proprietorships, partnerships, and limited liability companies.

Proprietorships, Partnerships, and Limited Liability Companies

The four most common legal forms for organizing and operating a business are as follows:

1. Proprietorship
2. Corporation
3. Partnership
4. Limited liability company

In this section, the characteristics of proprietorships, partnerships, and limited liability companies are described. The characteristics of corporations are described in Chapter 13.

Proprietorships

The **Internal Revenue Service (IRS)** estimates that proprietorships file 70% of business tax returns, but earn only 5% of all business revenues.

A proprietorship is a company owned by a single individual. The most common type of proprietorships are professional service providers, such as lawyers, architects, realtors, and physicians.

Characteristics of proprietorships include the following:

1. *Simple to form.* There are no legal restrictions or forms to file.
2. *No limitation on legal liability.* The owner is personally liable for any debts or legal claims against the business. Thus, creditors can take the personal assets of the owner if the business debts exceed the owner's investment in the company.

3. *Not taxable.* For federal income tax purposes, a proprietorship is not taxed. Instead, the proprietorship's income or loss is "passed through" to the owner's individual income tax return.[1]
4. *Limited life.* When the owner dies or retires, the proprietorship ceases to exist.
5. *Limited ability to raise capital (funds).* The ability to raise capital (funds) is limited to what the owner can provide from personal resources or through borrowing.

Partnerships

A **partnership** is an association of two or more persons who own and manage a business for profit.[2] Partnerships are less widely used than proprietorships.

Characteristics of a partnership include the following:

1. *Moderately complex to form.* A partnership requires only an agreement between two or more persons to organize. However, the **partnership agreement**, sometimes called the *articles of partnership*, includes matters such as amounts to be invested, limits on withdrawals, distributions of income and losses, and admission and withdrawal of partners. Thus, an attorney is often used in forming a partnership.
2. *No limitation on legal liability.* The partners are personally liable for any debts or legal claims against the partnership. Therefore, creditors can take the personal assets of the partners if the business debts exceed the partners' investment in the business.
3. *Not taxable.* For federal income tax purposes, a partnership is not taxed. Instead, the partnership's income or loss is "passed through" to the partners' individual income tax returns. However, partnerships must still report revenues, expenses, and income or loss annually to the Internal Revenue Service.
4. *Limited life.* When a partner dies or retires, the partnership ceases to exist. Likewise, the admission of a new partner dissolves the old partnership, and a new partnership must be formed if operations are to continue.
5. *Limited ability to raise capital (funds).* The ability to raise capital (funds) for the partnership is limited to what the partners can provide from personal resources or through borrowing.

Note:
A partnership is a nontaxable entity that has a limited life and unlimited liability.

In addition to those characteristics, some unique aspects of partnerships are:

1. *Co-ownership of partnership property.* The property invested in a partnership by a partner becomes the joint property of all the partners. When a partnership is dissolved, each partner's share of the partnership assets is the balance in their capital account.
2. *Mutual agency.* Each partner is an agent of the partnership and may act on behalf of the entire partnership. Thus, any liabilities created by one partner become liabilities of all the partners.
3. *Participation in income.* Net income and net loss are distributed among the partners according to their partnership agreement. If the partnership agreement does not provide for distribution of income and losses, then income and losses are divided equally among the partners.

BusinessConnection

BREAKING UP IS HARD TO DO

In August 7, 2008, Kristen Hall, founding member of the country music group Sugarland, filed a lawsuit against her other two band members. Kristen felt entitled to one-third of the profits the band earned on its double platinum album, *Enjoy the Ride*, after she left the band to pursue a song-writing career. However, the band did not have a formal partnership agreement and, thus, there was no way to easily determine what she should receive. Without a partnership agreement, the case will be decided using Georgia partnership law. This dispute and related lawsuit might have been avoided by a formal partnership agreement.

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[1] The proprietor's statement of income is included on Schedule C of the individual 1040 tax return.

[2] The definition of a partnership is included in the Uniform Partnership Act, which has been adopted by most states.

A partnership may be organized as a limited partnership. A *limited partnership* is a unique legal form that provides partners who are not involved in the operations of the partnership with limited liability. In such a form, at least one *general partner* operates the partnership and has unlimited liability. The remaining partners are considered *limited partners.*

Limited Liability Companies

A **limited liability company (LLC)** is a form of legal entity that provides limited liability to its owners, but is treated as a partnership for tax purposes. The LLC is a relatively new form of business entity that has become widely used for small companies. LLCs, which may be owned by one or more persons or entities, are designed to overcome some of the disadvantages of a partnership.

Many companies have joint ventures organized as LLCs. For example, Walt Disney Company has a 42% interest in A&E Television Networks, LLC.

Characteristics of an LLC include the following:

1. *Moderately complex to form.* An LLC requires an agreement among the owners who are called members. The *operating agreement*, sometimes called *articles of organization*, includes matters such as amounts to be invested, limits on withdrawals, distributions of income and losses, and admission and withdrawal of members. An attorney is normally used in forming an LCC.
2. *Limited legal liability.* The members have *limited liability* even if they are active in the company. Thus, the members' personal assets are legally protected against creditor claims made against the LLC. That is, only the members' investments in the company are subject to claims of creditors.
3. *Not taxable.* An LLC may elect to be treated as a partnership for tax purposes. In this way, income passes through the LLC and is taxed on the individual members' tax returns.[3]
4. *Unlimited life.* Most LLC operating agreements specify continuity of life for the LLC, even when a member withdraws or new members join the LLC.
5. *Moderate ability to raise capital (funds).* Because of their limited liability, LLCs are attractive to many investors, thus allowing for greater access to capital (funds) than is normally the case in a partnership.

An LLC may elect to operate as a *member-managed* or a *manager-managed* company. In a member-managed LLC, individual members may legally bind the LLC, like partners bind a partnership. In a manager-managed LLC, only authorized members may legally bind the LLC. Thus, in a manager-managed LLC, members may share in the income of the LLC without concern for managing the company. As a result, manager-managed LLCs are attractive to many investors.

Comparing Proprietorships, Partnerships, and Limited Liability Companies

Exhibit 1 summarizes the characteristics of proprietorships, partnerships, and limited liability companies.

EXHIBIT 1 **Characteristics of Proprietorships, Partnerships, and Limited Liability Companies**

Organizational Form	Complexity of Formation	Legal Liability	Taxation	Limitation on Life of Entity	Access to Capital
Proprietorship	Simple	No limitation	Nontaxable (pass-through) entity	Limited	Limited
Partnership	Moderate	No limitation	Nontaxable (pass-through) entity	Limited	Limited
Limited Liability Company	Moderate	Limited liability	Nontaxable (pass-through) entity by election	Unlimited	Moderate

---

[3] An LLC may also be taxed as a separate entity. However, doing so would remove these tax benefits, making this a less common election.

Business Connection

ORGANIZATIONAL FORMS IN THE ACCOUNTING INDUSTRY

The four major accounting firms, KPMG LLP, Ernst & Young, PricewaterhouseCoopers, and Deloitte & Touche, all began as partnerships. This form was legally required due to the theory of mutual agency. That is, the partnership form was thought to create public trust by requiring all partners to be jointly liable and responsible for each other's judgments. In addition, investment in the partnerships was limited to practicing accountants. This prevented any pressures from outside investors affecting professional decisions.

As these firms grew and the risk increased, all of these firms were allowed to change, by law, to limited liability partnerships (LLPs). Thus, while remaining a partnership, the liability of the partners was limited to their investment in the firm. The LLP form is very similar to an LLC, except that investment is restricted to professionals.

Forming and Dividing Income of a Partnership

OBJ. 2 Describe and illustrate the accounting for forming a partnership and for dividing the net income and net loss of a partnership.

Most of the day-to-day accounting for a partnership or an LLC is similar to that illustrated in earlier chapters. However, the formation, division of net income or net loss, dissolution, and liquidation of partnerships and LLCs give rise to unique transactions.

In the remainder of this chapter, the unique transactions for partnerships and LLCs are described and illustrated. The accounting for an LLC is the same as a partnership, except that the terms "member" and "members' equity" are used rather than "partner" or "owners' capital." For this reason, the journal entries for an LLC are shown alongside the partnership entries.

Forming a Partnership

In forming a partnership, the investments of each partner are recorded in separate entries. The assets contributed by a partner are debited to the partnership asset accounts. If any liabilities are assumed by the partnership, the partnership liability accounts are credited. The partner's capital account is credited for the net amount.

To illustrate, assume that Joseph Stevens and Earl Foster, owners of competing hardware stores, agree to combine their businesses in a partnership. Stevens agrees to contribute the following:

Cash	$ 7,200	Office equipment	$2,500
Accounts receivable	16,300	Allowance for doubtful accounts	1,500
Merchandise inventory	28,700	Accounts payable	2,600
Store equipment	5,400		

The entry to record the assets and liabilities contributed by Stevens is as follows:

LLC		
Cash	*7,200*	
Accounts Receivable	*16,300*	
Merchandise Inventory	*28,700*	
Store Equipment	*5,400*	
Office Equipment	*2,500*	
Allowance for Doubtful Accounts		*1,500*
Accounts Payable		*2,600*
Joseph Stevens, Member Equity		*56,000*

Apr.	1	Cash		7,200	
		Accounts Receivable		16,300	
		Merchandise Inventory		28,700	
		Store Equipment		5,400	
		Office Equipment		2,500	
		Allowance for Doubtful Accounts			1,500
		Accounts Payable			2,600
		Joseph Stevens, Capital			56,000

In the preceding entry, the noncash assets are recorded at values agreed upon by the partners. These values are normally based on current market values. As a result, the book value of the assets contributed by the partners normally differs from that recorded by the new partnership.

To illustrate, the store equipment contributed by Stevens may have had a book value of $3,500 in Stevens' ledger (cost of $10,000 less accumulated depreciation of $6,500). However, the store equipment is recorded at its current market value of $5,400 in the preceding entry. The contributions of Foster would be recorded in an entry similar to the entry for Stevens.

Example Exercise 12-1 Journalize Partner's Original Investment

OBJ. 2

Reese Howell contributed equipment, inventory, and $34,000 cash to a partnership. The equipment had a book value of $23,000 and a market value of $29,000. The inventory had a book value of $60,000, but only had a market value of $15,000, due to obsolescence. The partnership also assumed a $12,000 note payable owed by Howell that was used originally to purchase the equipment.

Provide the journal entry for Howell's contribution to the partnership.

Follow My Example 12-1

Cash	34,000	
Inventory	15,000	
Equipment	29,000	
Notes Payable		12,000
Reese Howell, Capital		66,000

Practice Exercises: **PE 12-1A, PE 12-1B**

Dividing Income

Income or losses of the partnership are divided *equally* if no partnership agreement exists or the partnership agreement does not specify how the division is to occur. Most partnership agreements, however, do specify how income or losses are to be divided.

Common methods of dividing partnership income are based on:

1. Services of the partners
2. Services and investments of the partners

Dividing Income—Services of Partners One method of dividing partnership income is based on the services provided by each partner to the partnership. These services are often recognized by partner salary allowances. Such allowances reflect differences in partners' abilities and time devoted to the partnership. Since partners are not employees, such allowances are recorded as divisions of net income and are credited to the partners' capital accounts.

To illustrate, assume that the partnership agreement of Jennifer Stone and Crystal Mills provides for the following:

	Monthly Salary Allowance
Jennifer Stone	$5,000
Crystal Mills	4,000
Remaining net income:	Divided Equally

The division of income may be reported at the bottom of the partnership income statement. Using this format, the division of $150,000 of net income would be reported on the bottom of the partnership income statement as follows:

Net income			$150,000
Division of net income:			
	J. Stone	**C. Mills**	**Total**
Annual salary allowance	$ 60,000	$ 48,000	$ 108,000
Remaining income	21,000	21,000	42,000
Net income	$81,000	$69,000	$150,000

The division of net income may also be reported as a separate statement accompanying the balance sheet and the income statement or in a statement of partnership capital.

The net income division is recorded as a closing entry, even if the partners do not withdraw the amounts of their salary allowances. The entry for closing Income Summary and dividing net income is as follows:

LLC		
Income Summary	*150,000*	
Jennifer Stone, Member Equity		*81,000*
Crystal Mills, Member Equity		*69,000*

Dec.	31	Income Summary		150,000	
		Jennifer Stone, Capital			81,000
		Crystal Mills, Capital			69,000

If Stone and Mills withdraw their salary allowances monthly, the withdrawals are debited to their drawing accounts. At the end of the year, the drawing account debit balances of $60,000 and $48,000 are then closed to the partners' capital accounts.

Dividing Income—Services of Partners and Investments A partnership agreement may divide income not only based upon services, but also based upon the amount invested by each partner. In doing so, the partnership may pay interest on the capital balance of each partner. In this way, partners with more invested in the partnership are rewarded by receiving more of the partnership income. One such method of dividing partnership income would be as follows:

1. Partner salary allowances
2. Interest on capital investments
3. Any remaining income equally

To illustrate, assume that the partnership agreement for Stone and Mills provides for the following:

1.

	Monthly Salary Allowance
Jennifer Stone	$5,000
Crystal Mills	4,000

2. Interest of 12% on each partner's capital balance as of January 1.

Capital, Jennifer Stone, January 1	$160,000
Capital, Crystal Mills, January 1	120,000

3. Remaining income: Divided Equally

The $150,000 net income for the year is divided as follows:

Net income			$150,000
Division of net income:			
	J. Stone	**C. Mills**	**Total**
Annual salary allowance	$ 60,000	$ 48,000	$ 108,000
Interest allowance	19,200[1]	14,400[2]	33,600
Remaining income	4,200	4,200	8,400
Net income	$83,400	$66,600	$150,000

[1] 12% × $160,000
[2] 12% × $120,000

The entry for closing Income Summary and dividing net income is as follows:

LLC		
Income Summary	*150,000*	
Jennifer Stone, Member Equity		*83,400*
Crystal Mills, Member Equity		*66,600*

Dec.	31	Income Summary		150,000	
		Jennifer Stone, Capital			83,400
		Crystal Mills, Capital			66,600

Integrity, Objectivity, and Ethics in Business

TYRANNY OF THE MAJORITY

Some partnerships involve the contribution of money by one partner and the contribution of effort and expertise by another. This can create a conflict between the two partners, since one works and the other doesn't. Without a properly developed partnership agreement, the working partner could take income in the form of a salary allowance, leaving little for the investor partner. Thus, partnership agreements often require all partners to agree on salary allowances provided to working partners.

Dividing Income—Allowances Exceed Net Income In the preceding example, the net income is $150,000. The total of the salary ($108,000) and interest ($33,600) allowances is $141,600. Thus, the net income exceeds the salary and interest allowances. In some cases, however, the net income may be less than the total of the allowances. In this case, the remaining net income to divide is a *negative* amount. This negative amount is divided among the partners as though it were a net loss.

To illustrate, assume the same salary and interest allowances as in the preceding example, but that the net income is $100,000. In this case, the total of the allowances of $141,600 exceeds the net income by $41,600 ($100,000 – $141,600). This amount is divided equally between Stone and Mills. Thus, $20,800 ($41,600/2) is deducted from each partner's share of the allowances. The final division of net income between Stone and Mills is shown below.

Net income.......... **$100,000**

Division of net income:

	J. Stone	C. Mills	Total
Annual salary allowance	$ 60,000	$ 48,000	$ 108,000
Interest allowance	19,200	14,400	33,600
Total	$ 79,200	$ 62,400	$ 141,600
Deduct excess of allowances over income	20,800	20,800	41,600
Net income	**$58,400**	**$41,600**	**$100,000**

The entry for closing Income Summary and dividing net income is as follows:[4]

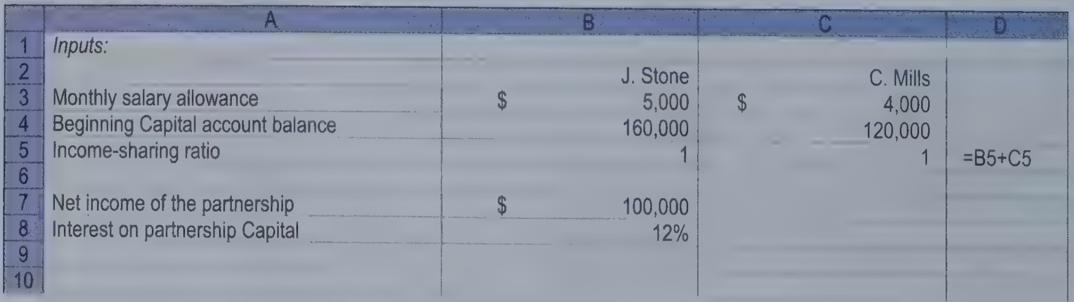
LLC

Income Summary	*100,000*	
Jennifer Stone, Member Equity		*58,400*
Crystal Mills, Member Equity		*41,600*

Dec.	31	Income Summary		100,000	
		Jennifer Stone, Capital			58,400
		Crystal Mills, Capital			41,600

excel success

The income of a partnership can be divided using spreadsheet software. The spreadsheet solution for Stone and Mills is as follows:



	A	B	C	D
1	*Inputs:*			
2		J. Stone	C. Mills	
3	Monthly salary allowance	$ 5,000	$ 4,000	
4	Beginning Capital account balance	160,000	120,000	
5	Income-sharing ratio	1	1	=B5+C5
6				
7	Net income of the partnership	$ 100,000		
8	Interest on partnership Capital	12%		
9				
10				

The spreadsheet is developed by creating an input area where partnership income information is provided. The income-sharing ratio is presented as a number for each partner, such as 1:1 in this case, which is totaled in cell D5. If the partners shared income in the ratio of 2:1, then the numbers in row 5 would be 2 for Stone, 1 for Mills, totaling to 3.

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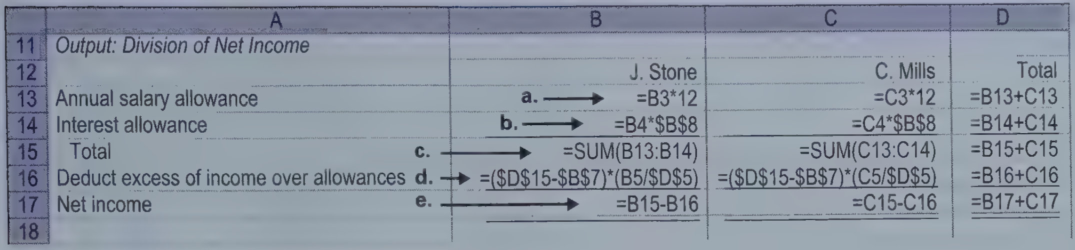
[4] In the event of a net loss, the amount deducted from the total allowances would be the "excess of allowances over loss" or the sum of the net loss and the allowances, divided according to the sharing ratio.



	A		B	C	D
11	*Output: Division of Net Income*				
12			J. Stone	C. Mills	Total
13	Annual salary allowance	a. →	=B3*12	=C3*12	=B13+C13
14	Interest allowance	b. →	=B4*$B$8	=C4*$B$8	=B14+C14
15	Total	c. →	=SUM(B13:B14)	=SUM(C13:C14)	=B15+C15
16	Deduct excess of income over allowances	d. →	=($D$15-$B$7)*(B5/$D$5)	=($D$15-$B$7)*(C5/$D$5)	=B16+C16
17	Net income	e. →	=B15-B16	=C15-C16	=B17+C17
18					

The formulas for the output space would be developed as follows:

a. Enter in cell B13 the formula for the annual salary allowance, =B3*12. (The monthly salary allowance must be multiplied by 12 to annualize the salary.)

b. Enter in cell B14 the formula for the interest allowance on partner capital,

=B4*$B$8 ← The dollar signs in this formula keeps the cell reference fixed when copying the cell. (See the Absolute / Relative tutorial for more information.)

c. Enter in cell B15 the sum function, =SUM(B13:B14).

d. Enter in cell B16 the formula for the excess of allowances over income that must be deducted in determining partnership capital, as follows:

$$=(\underbrace{\$D\$15-\$B\$7})*\underbrace{(B5/\$D\$5)}$$

This term is the total excess of allowances over income. The dollar signs fix the column and row references.

This term is the income-sharing ratio. The denominator of the ratio is an absolute cell reference.

e. Enter the formula for the net income to the partner in cell B17, =B15-B16. Copy the formulas in cells B13:B17 to C13:C17. If you entered the dollar signs correctly in all the formulas, the copy command can copy the specified cell references during copying.

The output table for determining the share of partnership income when the total income exceeds total allowances would be formulated so that the excess would be multiplied by the income-sharing ratio. This would be similar to the equation in d. above, except the difference in the first term would be reversed.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Try*It* This Excel Success example uses an Excel function referred to as cell referencing. Go to the ***Excel Tutor*** titled **Absolute & Relative Cell References** for additional help on this useful Excel function!

Example Exercise 12-2 Dividing Partnership Net Income

OBJ. 2

Steve Prince and Chelsy Bernard formed a partnership, dividing income as follows:

1. Annual salary allowance to Prince of $42,000.
2. Interest of 9% on each partner's capital balance on January 1.
3. Any remaining net income divided equally.

Prince and Bernard had $20,000 and $150,000 in their January 1 capital balances, respectively. Net income for the year was $240,000.

How much net income should be distributed to Prince?

(Continued)

Follow My Example 12-2

	Steve Prince	Chelsy Bernard	Total
Annual salary	$ 42,000	$ 0	$ 42,000
Interest	1,800[1]	13,500[2]	15,300
Remaining income	91,350[3]	91,350	182,700
Total distributed to Prince	$135,150	$104,850	$240,000

[1] $20,000 × 9%

[2] $150,000 × 9%

[3] ($240,000 – $42,000 – $15,300) × 50%

Practice Exercises: **PE 12-2A, PE 12-2B**

OBJ 3 Describe and illustrate the accounting for partner admission and withdrawal.

Partner Admission and Withdrawal

Many partnerships provide for admitting new partners and for partner withdrawals by amending the existing partnership agreement. In this way, the company may continue operating without having to form a new partnership and prepare a new partnership agreement.

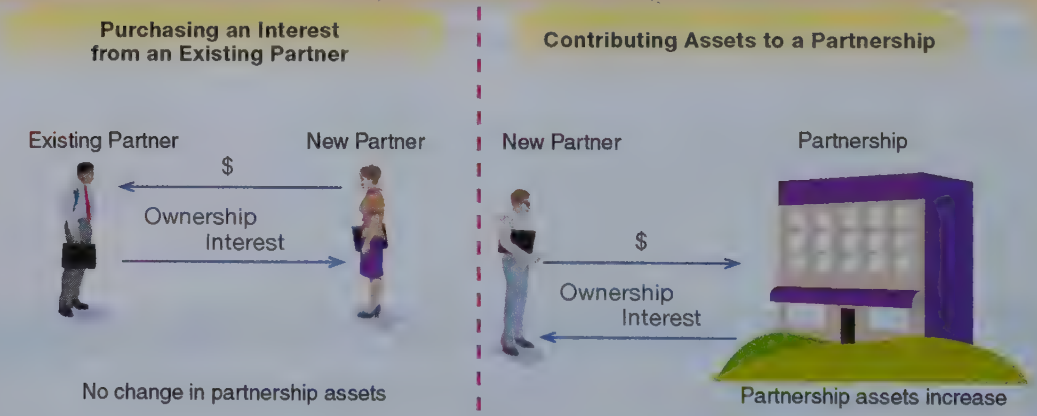
Admitting a Partner

As shown in Exhibit 2, a person may be admitted to a partnership by either of the following:

1. Purchasing an interest from one or more of the existing partners
2. Contributing assets to the partnership

EXHIBIT 2

Two Methods for Admitting a Partner



When a new partner is admitted by *purchasing an interest* from one or more of the existing partners, the total assets and the total owners' equity of the partnership are not affected. The capital (equity) of the new partner is recorded by transferring capital (equity) from the existing partners.

When a new partner is admitted by *contributing assets* to the partnership, the total assets and the total owners' equity of the partnership are increased. The capital (equity) of the new partner is recorded as the amount of assets contributed to the partnership by the new partner.

Purchasing an Interest from Existing Partners When a new partner is admitted by purchasing an interest from one or more of the existing partners, the transaction is between the new and existing partners acting as individuals. The admission of the new partner is recorded by transferring owners' equity amounts from the capital accounts of the selling partners to the capital account of the new partner.

To illustrate, assume that on June 1 Tom Andrews and Nathan Bell each sell one-fifth of their partnership equity of Bring It Consulting to Joe Canter for $10,000 in cash. On June 1, the partnership has net assets of $100,000 and both existing partners have capital balances of $50,000 each. This transaction is between Andrews, Bell, and Canter. The only entry required by Bring It Consulting is to record the transfer of capital (equity) from Andrews and Bell to Canter, as shown below.

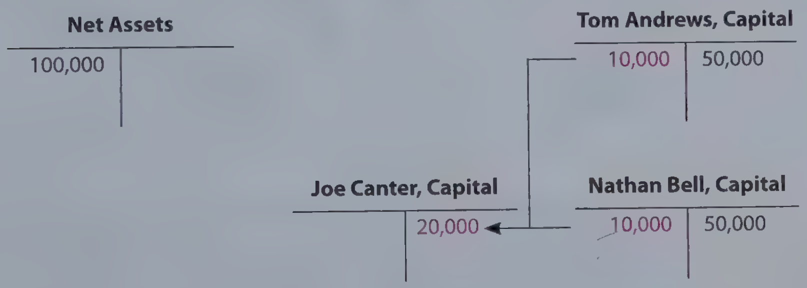
LLC		
Tom Andrews, Member Equity	*10,000*	
Nathan Bell, Member Equity	*10,000*	
Joe Canter, Member Equity		*20,000*

June	1	Tom Andrews, Capital		10,000	
		Nathan Bell, Capital		10,000	
		Joe Canter, Capital			20,000

The effect of the transaction on the partnership accounts is shown in the following diagram:

Bring It Consulting

Partnership Accounts



After Canter is admitted to Bring It Consulting, the total owners' equity is still $100,000. Canter has a one-fifth (20%) interest and a capital balance of $20,000. Andrews and Bell each own two-fifths (40%) interest and have capital balances of $40,000 each.

Even though Canter has a one-fifth (20%) interest in the partnership, he may not be entitled to a one-fifth share of the partnership net income. The division of the net income or net loss is made according to the new or amended partnership agreement.

The preceding entry is not affected by the amount paid by Canter for the one-fifth interest. For example, if Canter had paid $15,000 to Andrews and Bell instead of $10,000, the entry would still be the same. This is because the transaction is between Andrews, Bell, and Canter, rather than the partnership. Any gain or loss by Andrews and Bell on the sale of their partnership interest is theirs as individuals and does not affect the partnership.

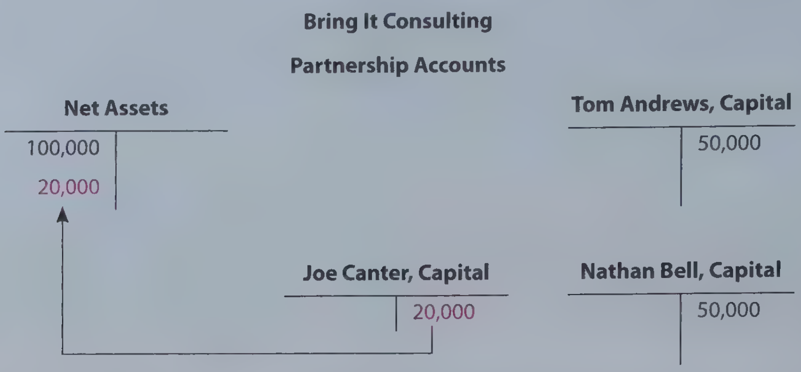
Contributing Assets to a Partnership When a new partner is admitted by contributing assets to the partnership, the total assets and the total owners' equity of the partnership are increased. This is because the transaction is between the new partner and the partnership.

To illustrate, assume that instead of purchasing a one-fifth ownership in Bring It Consulting directly from Tom Andrews and Nathan Bell, Joe Canter contributes $20,000 cash to Bring It Consulting for ownership equity of $20,000. The entry to record this transaction is as follows:

LLC		
Cash	*20,000*	
Joe Canter, Member Equity		*20,000*

June	1	Cash		20,000	
		Joe Canter, Capital			20,000

The effect of the transaction on the partnership accounts is shown in the following diagram:



After the admission of Canter, the net assets and total owners' equity of Bring It Consulting increase to $120,000, of which Joe Canter has a $20,000 interest. In contrast, in the prior example, the net assets and total owners' equity of Bring It Consulting did not change from $100,000.

Revaluation of Assets Before a new partner is admitted, the balances of a partnership's asset accounts should be stated at current values. If necessary, the accounts should be adjusted. Any net adjustment (increase or decrease) in asset values is divided among the capital accounts of the existing partners similar to the division of income.

To illustrate, assume that in the preceding example the balance of the merchandise inventory account is $14,000 and the current replacement value is $17,000. If Andrews and Bell share net income equally, the revaluation is recorded as follows:

LLC

Merchandise Inventory	*3,000*	
Tom Andrews, Member Equity		*1,500*
Nathan Bell, Member Equity		*1,500*

June	1	Merchandise Inventory		3,000	
		Tom Andrews, Capital			1,500
		Nathan Bell, Capital			1,500

Failure to adjust the partnership accounts for current values before admission of a new partner may result in the new partner sharing in asset gains or losses that arose in prior periods.

Example Exercise 12-3 Revaluing and Contributing Assets to a Partnership

OBJ 3

Blake Nelson invested $45,000 in the Lawrence & Kerry partnership for ownership equity of $45,000. Prior to the investment, land was revalued to a market value of $260,000 from a book value of $200,000. Lynne Lawrence and Tim Kerry share net income in a 1:2 ratio.

a. Provide the journal entry for the revaluation of land.
b. Provide the journal entry to admit Nelson.

Follow My Example 12-3

a. Land	60,000	
Lynne Lawrence, Capital		20,000[1]
Tim Kerry, Capital		40,000[2]

[1] $60,000 × 1/3
[2] $60,000 × 2/3

b. Cash	45,000	
Blake Nelson, Capital		45,000

Practice Exercises: **PE 12-3A, PE 12-3B**

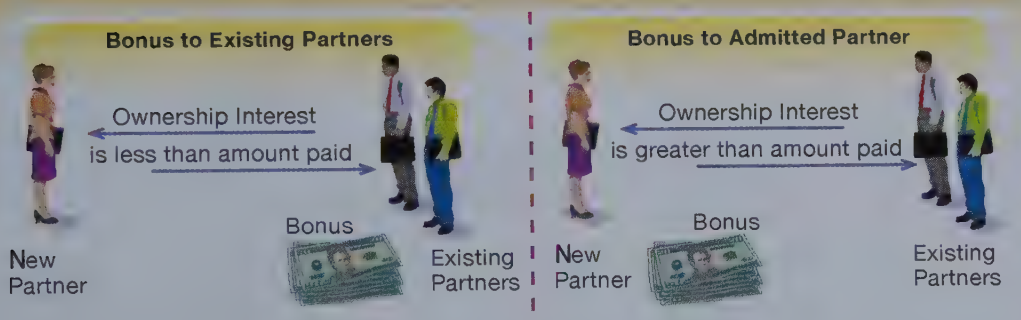
Partner Bonuses A new partner may pay existing partners a bonus to join a partnership. In other cases, existing partners may pay a new partner a bonus to join the partnership.

Bonuses are usually paid because of higher than normal profits the new or existing partners are expected to contribute in the future. For example, a new partner may bring special qualities or skills to the partnership. Celebrities such as actors, musicians, or sports figures often provide name recognition that is expected to increase a partnership's profits.

Partner bonuses are illustrated in Exhibit 3. Existing partners receive a bonus when the ownership interest received by the new partner is less than the amount paid. In contrast, the new partner receives a bonus when the ownership interest received by the new partner is greater than the amount paid.

EXHIBIT 3

Partner Bonuses



To illustrate, assume that on March 1 the partnership of Marsha Jenkins and Helen Kramer is considering a new partner, Alex Diaz. After the assets of the partnership have been adjusted to current market values, the capital balances of Jenkins and Kramer are as follows:

Marsha Jenkins, Capital	$20,000
Helen Kramer, Capital	24,000
Total owners' equity *before* admitting Diaz	$44,000

Jenkins and Kramer agree to admit Diaz to the partnership for $31,000. In return, Diaz will receive a one-third equity in the partnership and will share equally with Jenkins and Kramer in partnership income or losses. In this case, Diaz is paying Jenkins and Kramer a $6,000 bonus to join the partnership, computed as follows:

Marsha Jenkins, Capital	$20,000
Helen Kramer, Capital	24,000
Diaz's contribution	31,000
Total owners' equity *after* admitting Diaz	$75,000
Diaz's equity interest after admission	× 1/3
Alex Diaz, Capital	$25,000
Diaz's contribution	$31,000
Alex Diaz, Capital	25,000
Bonus paid to Jenkins and Kramer	$ 6,000

The $6,000 bonus paid by Diaz increases Jenkins's and Kramer's capital accounts. It is distributed to the capital accounts of Jenkins and Kramer according to their income-sharing ratio.[5] Assuming that Jenkins and Kramer share profits and losses equally, the entry to record the admission of Diaz to the partnership is as shown on the next page:

---

[5] Another method used to record the admission of partners attributes goodwill rather than a bonus to the partners. This method is discussed in advanced accounting textbooks.

LLC

Cash	*31,000*	
Alex Diaz, Member Equity		*25,000*
Marsha Jenkins, Member Equity		*3,000*
Helen Kramer, Member Equity		*3,000*

Mar.	1	Cash		31,000	
		Alex Diaz, Capital			25,000
		Marsha Jenkins, Capital			3,000
		Helen Kramer, Capital			3,000

Existing partners may agree to pay the new partner a bonus to join a partnership. To illustrate, assume that after adjusting assets to market values, the capital balances of Janice Cowen and Steve Dodd are as follows:

Janice Cowen, Capital	$ 80,000
Steve Dodd, Capital	40,000
Total owners' equity *before* admitting Chou	$120,000

Cowen and Dodd agree to admit Ellen Chou to the partnership on June 1 for an investment of $30,000. In return, Chou will receive a one-fourth equity interest in the partnership and will share in one-fourth of the profits and losses. In this case, Cowen and Dodd are paying Chou a $7,500 bonus to join the partnership, computed as follows:

Janice Cowen, Capital	$ 80,000
Steve Dodd, Capital	40,000
Chou's contribution	30,000
Total owners' equity *after* admitting Chou	$150,000
Chou's equity interest after admission	× ¼
Ellen Chou, Capital	$ 37,500
Ellen Chou, Capital	$ 37,500
Chou's contribution	30,000
Bonus paid to Chou	$ 7,500

The $7,500 bonus paid to Chou decreases Cowen's and Dodd's capital accounts. It is distributed to the capital accounts of Cowen and Dodd according to their income-sharing ratio. Assuming that the income-sharing ratio of Cowen and Dodd was 2:1 before the admission of Chou, the entry to record the admission of Chou to the partnership is as follows:

LLC

Cash	*30,000*	
Janice Cowen, Member Equity	*5,000*[1]	
Steve Dodd, Member Equity	*2,500*[2]	
Ellen Chou, Member Equity		*37,500*

June	1	Cash		30,000	
		Janice Cowen, Capital		5,000[1]	
		Steve Dodd, Capital		2,500[2]	
		Ellen Chou, Capital			37,500

[1] $7,500 × 2/3

[2] $7,500 × 1/3

Example Exercise 12-4 Partner Bonus

OBJ 3

Lowman has a capital balance of $45,000 after adjusting assets to fair market value. Conrad contributes $26,000 to receive a 30% interest in a new partnership with Lowman.

Determine the amount and recipient of the partner bonus.

Follow My Example 12-4

Equity of Lowman	$45,000
Conrad's contribution	26,000
Total equity after admitting Conrad	$71,000
Conrad's equity interest	× 30%
Conrad's equity after admission	$21,300
Conrad's contribution	$26,000
Conrad's equity after admission	21,300
Bonus paid to Lowman	$ 4,700

Practice Exercises: **PE 12-4A, PE 12-4B**

Withdrawal of a Partner

A partner may retire or withdraw from a partnership. In such cases, the withdrawing partner's interest is normally sold to the:

1. Existing partners or
2. Partnership

If the *existing partners* purchase the withdrawing partner's interest, the purchase and sale of the partnership interest is between the partners as individuals. The only entry on the partnership's records is to debit the capital account of the partner withdrawing and to credit the capital account of the partner or partners buying the additional interest.

If the *partnership purchases* the withdrawing partner's interest, the assets and the owners' equity of the partnership are reduced by the purchase price. Before the purchase, the asset accounts should be adjusted to current values. The net amount of any adjustment should be divided among the capital accounts of the partners according to their income-sharing ratio.

The entry to record the purchase debits the capital account of the withdrawing partner and credits Cash for the amount of the purchase. If not enough partnership cash is available to pay the withdrawing partner, a liability may be created (credited) for the amount owed the withdrawing partner.

A partner generally cannot withdraw without permission of the remaining partners, nor can a partner be forced to withdraw by the other partners. In this sense, a partnership is like a marriage, "for better or for worse."

Death of a Partner

When a partner dies, the partnership accounts should be closed as of the date of death. The net income for the current period should then be determined and divided among the partners' capital accounts. The asset accounts should also be adjusted to current values and the amount of any adjustment divided among the capital accounts of the partners.

After the income is divided and any assets revalued, an entry is recorded to close the deceased partner's capital account. The entry debits the deceased partner's capital account for its balance and credits a liability account, which is payable to the deceased's estate. The remaining partner or partners may then decide to continue the business or liquidate it.

Liquidating Partnerships

OBJ. 4 Describe and illustrate the accounting for liquidating a partnership.

When a partnership goes out of business, it sells the assets, pays the creditors, and distributes the remaining cash or other assets to the partners. This winding-up process is called the **liquidation** of the partnership. Although *liquidating* refers to the payment of liabilities, it includes the entire winding-up process.

When the partnership goes out of business and the normal operations are discontinued, the accounts should be adjusted and closed. The only accounts remaining open will be the asset, contra asset, liability, and owners' equity accounts.

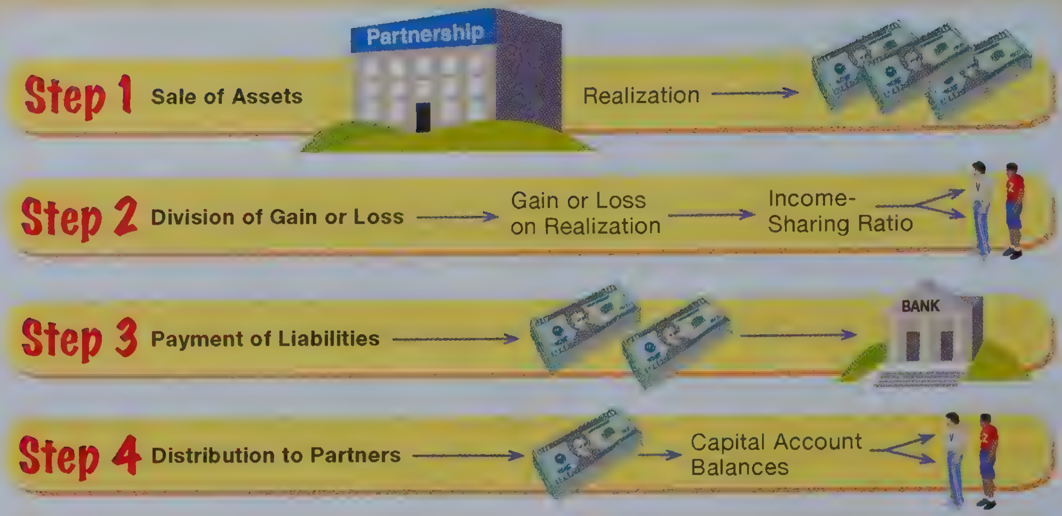
The liquidation process is illustrated in Exhibit 4. The steps in the liquidation process are as follows:

Step 1. Sell the partnership assets. This step is called **realization.**
Step 2. Distribute any gains or losses from realization to the partners based on their income-sharing ratio.
Step 3. Pay the claims of creditors using the cash from step 1 realization.
Step 4. Distribute the remaining cash to the partners based on the balances in their capital accounts.

Note:
In liquidation, cash is distributed to partners according to their capital balances.

EXHIBIT 4

Steps in Liquidating a Partnership



To illustrate, assume that Farley, Green, and Hall decide to liquidate their partnership. On April 9, after discontinuing business operations of the partnership and closing the accounts, the following trial balance is prepared:

Farley, Green, and Hall
Post-Closing Trial Balance
April 9, 2012

	Debit Balances	Credit Balances
Cash	11,000	
Noncash Assets	64,000	
Liabilities		9,000
Jean Farley, Capital		22,000
Brad Green, Capital		22,000
Alice Hall, Capital		22,000
	75,000	75,000

Farley, Green, and Hall share income and losses in a ratio of 5:3:2 (50%, 30%, 20%). To simplify, assume that all noncash assets are sold in a single transaction and that all liabilities are paid at one time. In addition, Noncash Assets and Liabilities will be used as account titles in place of the various asset, contra asset, and liability accounts.

Gain on Realization

Assume that Farley, Green, and Hall sell all noncash assets for $72,000. Thus, a gain of $8,000 ($72,000 – $64,000) is realized. The partnership is liquidated during April as follows:

Step 1. Sale of assets: $72,000 is realized from sale of all the noncash assets.

Step 2. Division of gain: The gain of $8,000 is distributed to Farley, Green, and Hall in the income-sharing ratio of 5:3:2. Thus, the partner capital accounts are credited as follows:

Farley	$4,000 ($8,000 × 50%)
Green	2,400 ($8,000 × 30%)
Hall	1,600 ($8,000 × 20%)

Step 3. Payment of liabilities: Creditors are paid $9,000.

Step 4. Distribution of cash to partners: The remaining cash of $74,000 is distributed to the partners according to their capital balances as follows:

Farley	$26,000
Green	24,400
Hall	23,600

A **statement of partnership liquidation**, which summarizes the liquidation process, is shown in Exhibit 5.

EXHIBIT 5 Statement of Partnership Liquidation: Gain on Realization

Farley, Green, and Hall
Statement of Partnership Liquidation
For Period April 10–30, 2012

					Capital		
		Cash +	Noncash Assets =	Liabilities +	Farley (50%) +	Green (30%) +	Hall (20%)
	Balances before realization	$11,000	$64,000	$9,000	$22,000	$22,000	$22,000
Steps 1–2 →	Sale of assets and division of gain	+72,000	−64,000		+ 4,000	+ 2,400	+ 1,600
	Balances after realization	$83,000	$ 0	$9,000	$26,000	$24,400	$23,600
Step 3 →	Payment of liabilities	−9,000		−9,000			
	Balances after payment of liabilities	$74,000	$ 0	$ 0	$26,000	$24,400	$23,600
Step 4 →	Cash distributed to partners	−74,000			−26,000	−24,400	−23,600
	Final balances	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0

The entries to record the steps in the liquidating process are as follows:

Sale of assets (Step 1):

Cash	72,000	
Noncash Assets		64,000
Gain on Realization		8,000

LLC

Cash	*72,000*	
Noncash Assets		*64,000*
Gain on Realization		*8,000*

Division of gain (Step 2):

Gain on Realization	8,000	
Jean Farley, Capital		4,000
Brad Green, Capital		2,400
Alice Hall, Capital		1,600

LLC

Gain on Realization	*8,000*	
Jean Farley, Member Equity		*4,000*
Brad Green, Member Equity		*2,400*
Alice Hall, Member Equity		*1,600*

Payment of liabilities (Step 3):

Liabilities	9,000	
Cash		9,000

LLC

Liabilities	*9,000*	
Cash		*9,000*

Distribution of cash to partners (Step 4):

		Jean Farley, Capital	26,000	
		Brad Green, Capital	24,400	
		Alice Hall, Capital	23,600	
		Cash		74,000

LLC

Jean Farley, Member Equity	*26,000*	
Brad Green, Member Equity	*24,400*	
Alice Hall, Member Equity	*23,600*	
Cash		*74,000*

As shown in Exhibit 5, *the cash is distributed to the partners based on the balances of their capital accounts.* These balances are determined after the gain on realization has been divided among the partners and the liabilities paid. The *income-sharing ratio should not be used as a basis for distributing the cash to partners.*

Loss on Realization

Assume that Farley, Green, and Hall sell all noncash assets for $44,000. Thus, a loss of $20,000 ($64,000 – $44,000) is realized. The liquidation of the partnership is as follows:

Step 1. Sale of assets: $44,000 is realized from the sale of all the noncash assets.

Step 2. Division of loss: The loss of $20,000 is distributed to Farley, Green, and Hall in the income-sharing ratio of 5:3:2. Thus, the partner capital accounts are debited as follows:

Farley	$10,000 ($20,000 × 50%)
Green	6,000 ($20,000 × 30%)
Hall	4,000 ($20,000 × 20%)

Step 3. Payment of liabilities: Creditors are paid $9,000.

Step 4. Distribution of cash to partners: The remaining cash of $46,000 is distributed to the partners according to their capital balances as follows:

Farley	$12,000
Green	16,000
Hall	18,000

The steps in liquidating the partnership are summarized in the statement of partnership liquidation shown in Exhibit 6.

EXHIBIT 6 **Statement of Partnership Liquidation: Loss on Realization**

Farley, Green, and Hall
Statement of Partnership Liquidation
For Period April 10–30, 2012

						Capital	
		Cash +	**Noncash Assets =**	**Liabilities +**	**Farley (50%) +**	**Green (30%) +**	**Hall (20%)**
	Balances before realization	$11,000	$64,000	$9,000	$22,000	$22,000	$22,000
Steps 1–2 →	Sale of assets and division of loss	+44,000	−64,000		−10,000	− 6,000	− 4,000
	Balances after realization	$55,000	$ 0	$9,000	$12,000	$16,000	$18,000
Step 3 →	Payment of liabilities	−9,000		−9,000			
	Balances after payment of liabilities	$46,000	$ 0	$ 0	$12,000	$16,000	$18,000
Step 4 →	Cash distributed to partners	−46,000			−12,000	−16,000	−18,000
	Final balances	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0

The entries to liquidate the partnership are as follows:

Sale of assets (Step 1):

		Cash		44,000	
		Loss on Realization		20,000	
		Noncash Assets			64,000

LLC		
Cash	*44,000*	
Loss on Realization	*20,000*	
Noncash Assets		*64,000*

Division of loss (Step 2):

		Jean Farley, Capital		10,000	
		Brad Green, Capital		6,000	
		Alice Hall, Capital		4,000	
		Loss on Realization			20,000

LLC		
Jean Farley, Member Equity	*10,000*	
Brad Green, Member Equity	*6,000*	
Alice Hall, Member Equity	*4,000*	
Loss on Realization		*20,000*

Payment of liabilities (Step 3):

		Liabilities		9,000	
		Cash			9,000

LLC		
Liabilities	*9,000*	
Cash		*9,000*

Distribution of cash to partners (Step 4):

		Jean Farley, Capital		12,000	
		Brad Green, Capital		16,000	
		Alice Hall, Capital		18,000	
		Cash			46,000

LLC		
Jean Farley, Member Equity	*12,000*	
Brad Green, Member Equity	*16,000*	
Alice Hall, Member Equity	*18,000*	
Cash		*46,000*

Example Exercise 12-5 Liquidating Partnerships

OBJ. 4

Prior to liquidating their partnership, Todd and Gentry had capital accounts of $50,000 and $100,000, respectively. Prior to liquidation, the partnership had no other cash assets than what was realized from the sale of assets. These assets were sold for $220,000. The partnership had $20,000 of liabilities. Todd and Gentry share income and losses equally. Determine the amount received by Gentry as a final distribution from the liquidation of the partnership.

Follow My Example 12-5

Gentry's equity prior to liquidation		$100,000
Realization of asset sale	$220,000	
Book value of assets ($50,000 + $100,000 + $20,000)	170,000	
Gain on liquidation	$ 50,000	
Gentry's share of gain (50% × $50,000)		25,000
Gentry's cash distribution		$125,000

Practice Exercises: **PE 12-5A, PE 12-5B**

Loss on Realization—Capital Deficiency

The share of a loss on realization may be greater than the balance in a partner's capital account. The resulting debit balance in the capital account is called a **deficiency**. It represents a claim of the partnership against the partner.

To illustrate, assume that Farley, Green, and Hall sell all noncash assets for $10,000. Thus, a loss of $54,000 ($64,000 – $10,000) is realized. The liquidation of the partnership is as follows:

Step 1. Sale of assets: $10,000 is realized from the sale of all the noncash assets.

Step 2. Division of loss: The loss of $54,000 is distributed to Farley, Green, and Hall in the income-sharing ratio of 5:3:2. The partner capital accounts are debited as follows:

Farley	$27,000 ($54,000 × 50%)
Green	16,200 ($54,000 × 30%)
Hall	10,800 ($54,000 × 20%)

Step 3. Payment of liabilities: Creditors are paid $9,000.

Step 4. Distribution of cash to partners: The share of the loss allocated to Farley, $27,000 (50% × $54,000), exceeds the $22,000 balance in her capital account. This $5,000 deficiency represents an amount that Farley owes the partnership. Assuming that Farley pays the deficiency, the cash of $17,000 is distributed to the partners according to their capital balances as follows:

Farley	$ 0
Green	5,800
Hall	11,200

The steps in liquidating the partnership are summarized in the statement of partnership liquidation shown in Exhibit 7.

The entries to liquidate the partnership are as follows:

Sale of assets (Step 1):

LLC			
Cash		10,000	
Loss on Realization		54,000	
Noncash Assets			64,000

		Cash		10,000	
		Loss on Realization		54,000	
		Noncash Assets			64,000

EXHIBIT 7 **Statement of Partnership Liquidation: Loss on Realization—Capital Deficiency**

Farley, Green, and Hall
Statement of Partnership Liquidation
For Period April 10–30, 2012

										Capital		
		Cash	**+**	**Noncash Assets**	**=**	**Liabilities**	**+**	**Farley (50%)**	**+**	**Green (30%)**	**+**	**Hall (20%)**
	Balances before realization	$11,000		$64,000		$9,000		$22,000		$22,000		$22,000
Steps 1–2 →	Sale of assets and division of loss	+10,000		−64,000				−27,000		−16,200		−10,800
	Balances after realization	$21,000		$ 0		$9,000		$ (5,000)		$ 5,800		$11,200
Step 3 →	Payment of liabilities	− 9,000				−9,000						
	Balances after payment of liabilities	$12,000		$ 0		$ 0		$ (5,000)		$ 5,800		$11,200
Step 4 →	Receipt of deficiency	+ 5,000						+ 5,000				
	Balances	$17,000		$ 0		$ 0		$ 0		$ 5,800		$11,200
→	Cash distributed to partners	−17,000								− 5,800		−11,200
	Final balances	$ 0		$ 0		$ 0		$ 0		$ 0		$ 0

Division of loss (Step 2):

LLC		
Jean Farley, Member Equity	*27,000*	
Brad Green, Member Equity	*16,200*	
Alice Hall, Member Equity	*10,800*	
Loss on Realization		*54,000*

		Jean Farley, Capital		27,000	
		Brad Green, Capital		16,200	
		Alice Hall, Capital		10,800	
		Loss on Realization			54,000

Payment of liabilities (Step 3):

LLC		
Liabilities	*9,000*	
Cash		*9,000*

		Liabilities		9,000	
		Cash			9,000

Receipt of deficiency (Step 4):

LLC		
Cash	*5,000*	
Jean Farley, Member Equity		*5,000*

		Cash		5,000	
		Jean Farley, Capital			5,000

Distribution of cash to partners (Step 4):

LLC		
Brad Green, Member Equity	*5,800*	
Alice Hall, Member Equity	*11,200*	
Cash		*17,000*

		Brad Green, Capital		5,800	
		Alice Hall, Capital		11,200	
		Cash			17,000

If the deficient partner does not pay the partnership their deficiency, there will not be sufficient partnership cash to pay the remaining partners in full. Any uncollected deficiency becomes a loss to the partnership and is divided among the remaining partners' capital balances based on their income-sharing ratio. The cash balance will then equal the sum of the capital account balances. The cash can then be distributed to the remaining partners, based on the balances of their capital accounts.

To illustrate, assume that in the preceding example Farley could not pay her deficiency. The deficiency would be allocated to Green and Hall based on their income-sharing ratio of 3:2. The remaining cash of $12,000 would then be distributed to Green ($2,800) and Hall ($9,200) as shown below.

	Capital Balances *Before* Deficiency	**Allocated (Deficiency)**	**Capital Balances *After* Deficiency**
Farley	$ (5,000)	$ 5,000	$ 0
Green	5,800	(3,000)*	2,800
Hall	11,200	(2,000)**	9,200
Total	$12,000		$12,000

*$3,000 = [$5,000 × (3/5)] or ($5,000 × 60%)

**$2,000 = [$5,000 × (2/5)] or ($5,000 × 40%)

The entries to allocate Farley's deficiency and distribute the cash are as follows:

Allocation of deficiency (Step 4):

LLC		
Brad Green, Member Equity	*3,000*	
Alice Hall, Member Equity	*2,000*	
Jean Farley, Member Equity		*5,000*

		Brad Green, Capital		3,000	
		Alice Hall, Capital		2,000	
		Jean Farley, Capital			5,000

Distribution of cash to partners (Step 4):

LLC		
Brad Green, Member Equity	*2,800*	
Alice Hall, Member Equity	*9,200*	
Cash		*12,000*

		Brad Green, Capital		2,800	
		Alice Hall, Capital		9,200	
		Cash			12,000

Example Exercise 12-6 Liquidating Partnerships—Deficiency

OBJ. 4

Prior to liquidating their partnership, Short and Bain had capital accounts of $20,000 and $80,000, respectively. The partnership assets were sold for $40,000. The partnership had no liabilities. Short and Bain share income and losses equally.

a. Determine the amount of Short's deficiency.
b. Determine the amount distributed to Bain, assuming Short is unable to satisfy the deficiency.

Follow My Example 12-6

a. Short's equity prior to liquidation		$ 20,000
Realization of asset sale	$ 40,000	
Book value of assets ($20,000 + $80,000)	100,000	
Loss on liquidation	$ 60,000	
Short's share of loss (50% × $60,000)		30,000
Short's deficiency		$(10,000)

b. $40,000. $80,000 – $30,000 share of loss – $10,000 Short deficiency.

Practice Exercises: **PE 12-6A, PE 12-6B**

OBJ. 5 Prepare the statement of partnership equity.

Statement of Partnership Equity

Reporting changes in partnership capital accounts is similar to that for a proprietorship. The primary difference is that there is a capital account for each partner. The changes in partner capital accounts for a period of time are reported in a **statement of partnership equity**.

Exhibit 8 illustrates a statement of partnership equity for Investors Associates, a partnership of Dan Cross and Kelly Baker. Each partner's capital account is shown as a separate column. The partner capital accounts may change due to capital additions, net income, or withdrawals.

The equity reporting for an LLC is similar to that of a partnership. Instead of a statement of partnership capital, a statement of members' equity is prepared. The **statement of members' equity** reports the changes in member equity for a period.

EXHIBIT 8

Statement of Partnership Equity

Investors Associates
Statement of Partnership Equity
For the Year Ended December 31, 2012

	Dan Cross, Capital	Kelly Baker, Capital	Total Partnership Capital
Balance, January 1, 2012	$245,000	$365,000	$610,000
Capital additions	50,000		50,000
Net income for the year	40,000	80,000	120,000
Less partner withdrawals	(5,000)	(45,000)	(50,000)
Balance, December 31, 2012	$330,000	$400,000	$730,000

The statement is similar to Exhibit 8, except that the columns represent member equity rather than partner equity.

Financial Analysis and Interpretation: Revenue per Employee

F·A·I

OBJ. 6 Analyze and interpret employee efficiency.

Many partnerships and LLCs operate as service-oriented enterprises. This is the case for many professions, such as medical, advertising, and accounting. The performance of such firms can be measured by the amount of net income per partner, as illustrated in this chapter. Another measure used to assess the performance of a service-oriented business is revenue per employee.

Revenue per employee is a measure of the efficiency of the business in generating revenues. It is computed as follows:

$$\text{Revenue per Employee} = \frac{\text{Revenue}}{\text{Number of Employees}}$$

In a partnership, the number of partners may be included with employees or partners may be evaluated separately. Generally, the higher the revenue per employee the more efficient the company is in generating revenue from its employees. In evaluating revenue per employee, changes over time as well as comparisons with industry averages are often used.

To illustrate comparisons over time, assume Washburn & Lovett, CPAs, has the following information for two years:

	2013	2012
Revenues	$220,000,000	$180,000,000
Number of employees	1,600	1,500

For Washburn & Lovett, the revenue per employee ratio is computed for 2013 and 2012 as follows:

$$\text{Revenue per employee, 2013: } \frac{\$220{,}000{,}000}{1{,}600 \text{ employees}} = \$137{,}500 \text{ per employee}$$

$$\text{Revenue per employee, 2012: } \frac{\$180{,}000{,}000}{1{,}500 \text{ employees}} = \$120{,}000 \text{ per employee}$$

Washburn & Lovett increased revenues by $40,000,000 ($220,000,000 – $180,000,000), or 22.2% ($40,000,000/$180,000,000) from 2012 to 2013. The number of employees increased by 100, or 6.7% (100 employees/1,500 employees) between the two years. Thus, the firm increased revenues at a rate faster than the increase in employees. As a result, the revenue per employee improved from $120,000 to $137,500 between the two years, suggesting improved efficiency in generating revenues.

To illustrate comparison within an industry, the revenue per employee for **Starbucks** and **McDonald's** for a recent year are as computed below.

$$\text{Starbucks: } \frac{\$10{,}383{,}000{,}000}{172{,}000 \text{ employees}} = \$60{,}366 \text{ per employee}$$

$$\text{McDonald's: } \frac{\$23{,}500{,}000{,}000}{400{,}000 \text{ employees}} = \$58{,}750 \text{ per employee}$$

The difference in the preceding ratios is small enough to conclude that Starbucks and McDonald's are equally efficient in their ability to generate revenue per employee.

The importance of comparing revenue per employee within an industry is further illustrated by comparing **Apple, Inc.**, and **Dell Inc.** The revenue per employee for Apple, Inc., is $1,014,969. In contrast, Dell has revenue per employee of $756,700. Thus, Apple has higher revenue per employee efficiency than does Dell.

Finally, you should note that comparisons across industries are often misleading. For example, Apple's revenue per employee of $1,014,969 is much higher than Starbucks' $60,366. However, Apple is a much different company than Starbucks; thus, this comparison is misleading. McDonald's is a better comparison for Starbucks, as is Dell for Apple.

Example Exercise 12-7 Revenue per Employee

6

AccuTax, CPAs earned $4,200,000 during 2012 using 20 employees. During 2013, the firm grew revenues to $4,560,000 and expanded the staff to 24 employees.

a. Determine the revenue per employee for each year.
b. Interpret the results.

Follow My Example 12-7

a. 2012: $\frac{\$4{,}200{,}000}{20 \text{ employees}} = \$210{,}000$ per employee

2013: $\frac{\$4{,}560{,}000}{24 \text{ employees}} = \$190{,}000$ per employee

b. While AccuTax grew revenues by $360,000 ($4,560,000 – $4,200,000), or 8.6% ($360,000/$4,200,000), the number of employees expanded by 4, or 20% (4/20). The growth in revenue was less than the growth in the number of employees; thus, the revenue per employee declined between the two years. The firm was less efficient in generating revenues from its employees in 2013.

Practice Exercises: **PE 12-7A, PE 12-7B**

At a Glance 12

1

Describe the characteristics of proprietorships, partnerships, and limited liability companies.

Key Points The advantages and disadvantages of proprietorships, partnerships, and limited liability companies are summarized in Exhibit 1.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Identify the advantages and disadvantages of proprietorships, partnerships, and limited liability companies.		

OBJ. 2 Describe and illustrate the accounting for forming a partnership and for dividing the net income and net loss of a partnership.

Key Points When a partnership is formed, accounts are debited for contributed assets and credited for assumed liabilities, and the partner's capital account is credited for the net amount. The net income of a partnership may be divided among the partners on the basis of services rendered, interest earned on the capital account balance, and the income-sharing ratio.

Learning Outcomes	Example Exercises	Practice Exercises
• Journalize the initial formation of a partnership and establish partner capital.	EE12-1	PE12-1A, 12-1B
• Determine and journalize the income distributed to each partner.	EE12-2	PE12-2A, 12-2B

OBJ. 3 Describe and illustrate the accounting for partner admission and withdrawal.

Key Points Partnership assets should be restated to current values prior to admission or withdrawal of a partner. A new partner may be admitted into a partnership by either purchasing an interest from an existing partner or by purchasing an interest directly from the partnership.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare for partner admission by revaluing assets to approximate current values.	EE12-3	PE12-3A, 12-3B
• Distinguish between partner admission through purchase from an existing partner or purchase from the partnership.	EE12-3	PE12-3A, 12-3B
• Determine partner bonuses.	EE12-4	PE12-4A, 12-4B

OBJ. 4 Describe and illustrate the accounting for liquidating a partnership.

Key Points A partnership is liquidated by the (1) sale of partnership assets (realization), (2) distribution of gain or loss on realization to the partners, (3) payments to creditors, and (4) distribution of the remaining cash to partners according to their capital account balances. A partner may be deficient when the amount of loss distribution exceeds the capital balance.

Learning Outcomes	Example Exercises	Practice Exercises
• Apply the four steps of liquidating a partnership for either gain or loss on realization.	EE12-5	PE12-5A, 12-5B
• Apply the four steps of partnership liquidation when there is a partner deficiency.	EE12-6	PE12-6A, 12-6B

OBJ. 5 Prepare the statement of partnership equity.

Key Points A statement of partnership equity reports the changes in partnership equity from capital additions, net income, and withdrawals.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare a statement of partnership equity.		

OBJ. 6

Analyze and interpret employee efficiency.

Key Points The revenue per employee ratio is calculated as the total annual revenues divided by the total employees. This ratio measures the total revenue earned by each employee, and thus, is a measure of the efficiency of each employee in revenue terms. The ratio is often used to measure efficiency trends over time and across similar firms.

Learning Outcomes	Example Exercises	Practice Exercises
• Analyze and interpret the revenue per employee ratio.	EE12-7	PE12-7A, 12-7B

Key Terms

- deficiency (556)
- limited liability company (LLC) (540)
- liquidation (551)
- partnership (539)
- partnership agreement (539)
- realization (551)
- revenue per employee (559)
- statement of members' equity (558)
- statement of partnership equity (558)
- statement of partnership liquidation (553)

Illustrative Problem

Radcliffe, Sonders, and Towers, who share in income and losses in the ratio of 2:3:5, decided to discontinue operations as of April 30, 2012, and liquidate their partnership. After the accounts were closed on April 30, 2012, the following trial balance was prepared:

Radcliffe, Sonders, and Towers
Post-Closing Trial Balance
April 30, 2012

	Debit Balances	Credit Balances
Cash	5,900	
Noncash Assets	109,900	
Liabilities		26,800
Radcliffe, Capital		14,600
Sonders, Capital		27,900
Towers, Capital		46,500
	115,800	115,800

Between May 1 and May 18, the noncash assets were sold for $27,400, and the liabilities were paid.

Instructions

1. Assuming that the partner with the capital deficiency pays the entire amount owed to the partnership, prepare a statement of partnership liquidation.

2. Journalize the entries to record (a) the sale of the assets, (b) the division of loss on the sale of the assets, (c) the payment of the liabilities, (d) the receipt of the deficiency, and (e) the distribution of cash to the partners.

Solution

1.

Radcliffe, Sonders, and Towers
Statement of Partnership Liquidation
For Period May 1–18, 2012

				Capital		
	Cash +	Noncash Assets =	Liabilities +	Radcliffe (20%) +	Sonders (30%) +	Towers (50%)
Balances before realization	$ 5,900	$109,000	$26,800	$14,600	$27,900	$46,500
Sale of assets and division of loss	+27,400	−109,000		−16,500	−24,750	−41,250
Balances after realization	$33,300	$ 0	$26,800	$ (1,900)	$ 3,150	$ 5,250
Payment of liabilities	−26,800		−26,800			
Balances after payment of liabilities	$ 6,500	$ 0	$ 0	$ (1,900)	$ 3,150	$ 5,250
Receipt of deficiency	+ 1,900			+ 1,900		
Balances	$ 8,400	$ 0	$ 0	$ 0	$ 3,150	$ 5,250
Cash distributed to partners	−8,400				− 3,150	− 5,250
Final balances	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0

2.a.

	Cash		27,400	
	Loss on Realization		82,500	
	Noncash Assets			109,900

b.

	Radcliffe, Capital		16,500	
	Sonders, Capital		24,750	
	Towers, Capital		41,250	
	Loss on Realization			82,500

c.

	Liabilities		26,800	
	Cash			26,800

d.

	Cash		1,900	
	Radcliffe, Capital			1,900

e.

		Sonders, Capital		3,150	
		Towers, Capital		5,250	
		Cash			8,400

Discussion Questions

1. What are the main advantages of (a) proprietorships, (b) partnerships, and (c) limited liability companies?
2. What are the disadvantages of a partnership over a limited liability company form of organization for a profit-making business?
3. Emilio Alvarez and Graciela Zavala joined together to form a partnership. Is it possible for them to lose a greater amount than the amount of their investment in the partnership? Explain.
4. What are the major features of a partnership agreement for a partnership, or an operating agreement for a limited liability company?
5. Josiah Barlow, Patty DuMont, and Owen Maholic are contemplating the formation of a partnership. According to the partnership agreement, Barlow is to invest $60,000 and devote one-half time, DuMont is to invest $40,000 and devote three-fourths time, and Maholic is to make no investment and devote full time. Would Maholic be correct in assuming that, since he is not contributing any assets to the firm, he is risking nothing? Explain.
6. During the current year, Marsha Engles withdrew $4,000 monthly from the partnership of Engles and Cox Water Management Consultants. Is it possible that her share of partnership net income for the current year might be more or less than $48,000? Explain.
7. a. What accounts are debited and credited to record a partner's cash withdrawal in lieu of salary?

   b. The articles of partnership provide for a salary allowance of $6,000 per month to partner C. If C withdrew only $4,000 per month, would this affect the division of the partnership net income?

   c. At the end of the fiscal year, what accounts are debited and credited to record the division of net income among partners?
8. Explain the difference between the admission of a new partner to a partnership (a) by purchase of an interest from another partner and (b) by contribution of assets to the partnership.
9. Why is it important to state all partnership assets in terms of current prices at the time of the admission of a new partner?
10. Why might a partnership pay a bonus to a newly admitted partner?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 2 **EE 12-1** *p. 542*

PE 12-1A Journalize partner's original investment

Brittany Adams contributed a patent, accounts receivable, and $61,000 cash to a partnership. The patent had a book value of $56,000. However, the technology covered by the patent appeared to have significant market potential. Thus, the patent was appraised at $240,000. The accounts receivable control account was $78,000, with an allowance for doubtful accounts of $4,000. The partnership also assumed a $15,000 account payable from Adams.

Provide the journal entry for Adams' contribution to the partnership.

OBJ. 2 **EE 12-1** *p. 542*

PE 12-1B Journalize partner's original investment

Kevin LaRoche contributed land, inventory, and $28,000 cash to a partnership. The land had a book value of $65,000 and a market value of $135,000. The inventory had a book value of $60,000 and a market value of $51,000. The partnership also assumed a $50,000 note payable owed by LaRoche that was used originally to purchase the land.

Provide the journal entry for LaRoche's contribution to the partnership.

OBJ. 2 **EE 12-2** *p. 545*

PE 12-2A Dividing partnership net income

Cody Paulson and Hannah O'Brien formed a partnership, dividing income as follows:

1. Annual salary allowance to Paulson of $26,000.
2. Interest of 5% on each partner's capital balance on January 1.
3. Any remaining net income divided to Paulson and O'Brien, 2:1.

Paulson and O'Brien had $50,000 and $120,000, respectively, in their January 1 capital balances. Net income for the year was $33,000.

How much net income should be distributed to Paulson?

OBJ. 2 **EE 12-2** *p. 545*

PE 12-2B Dividing partnership net income

Alex Conyers and Shaunika Stevens formed a partnership, dividing income as follows:

1. Annual salary allowance to Stevens of $45,000.
2. Interest of 8% on each partner's capital balance on January 1.
3. Any remaining net income divided equally.

Conyers and Stevens had $50,000 and $160,000, respectively, in their January 1 capital balances. Net income for the year was $200,000.

How much net income should be distributed to Stevens?

OBJ. 3 **EE 12-3** *p. 548*

PE 12-3A Revaluing and contributing assets to a partnership

Antoine Dodd purchased one-half of Kyle Bryan's interest in the Rich and Bryan partnership for $24,000. Prior to the investment, land was revalued to a market value of $110,000 from a book value of $84,000. Zach Rich and Kyle Bryan share net income equally. Bryan had a capital balance of $25,000 prior to these transactions.

a. Provide the journal entry for the revaluation of land.
b. Provide the journal entry to admit Dodd.

Learning Objectives *Example Exercises*

OBJ. 3 EE 12-3 *p. 548*

PE 12-3B Revaluing and contributing assets to a partnership

Naseef Asad invested $75,000 in the Lionel and Morehouse partnership for ownership equity of $75,000. Prior to the investment, equipment was revalued to a market value of $57,000 from a book value of $33,000. Justin Lionel and Courtney Morehouse share net income in a 2:1 ratio.

a. Provide the journal entry for the revaluation of equipment.

b. Provide the journal entry to admit Asad.

OBJ. 3 EE 12-4 *p. 550*

PE 12-4A Partner bonus

Sharpe has a capital balance of $300,000 after adjusting assets to fair market value. Rojas contributes $250,000 to receive a 60% interest in a new partnership with Sharpe.

Determine the amount and recipient of the partner bonus.

OBJ. 3 EE 12-4 *p. 550*

PE 12-4B Partner bonus

Joshi has a capital balance of $80,000 after adjusting assets to fair market value. Costas contributes $40,000 to receive a 40% interest in a new partnership with Joshi.

Determine the amount and recipient of the partner bonus.

OBJ. 4 EE 12-5 *p. 555*

PE 12-5A Liquidating partnerships

Prior to liquidating their partnership, Fowler and Ericson had capital accounts of $26,000 and $40,000, respectively. Prior to liquidation, the partnership had no cash assets other than what was realized from the sale of assets. These partnership assets were sold for $86,000. The partnership had $12,000 of liabilities. Fowler and Ericson share income and losses equally. Determine the amount received by Fowler as a final distribution from liquidation of the partnership.

OBJ. 4 EE 12-5 *p. 555*

PE 12-5B Liquidating partnerships

Prior to liquidating their partnership, Quinn and Kestor had capital accounts of $200,000 and $120,000, respectively. Prior to liquidation, the partnership had no cash assets other than what was realized from the sale of assets. These partnership assets were sold for $240,000. The partnership had $30,000 of liabilities. Quinn and Kestor share income and losses equally. Determine the amount received by Quinn as a final distribution from liquidation of the partnership.

OBJ. 4 EE 12-6 *p. 558*

PE 12-6A Liquidating partnerships—deficiency

Prior to liquidating their partnership, Jolly and Haines had capital accounts of $80,000 and $45,000, respectively. The partnership assets were sold for $30,000. The partnership had no liabilities. Jolly and Haines share income and losses equally.

a. Determine the amount of Haines' deficiency.

b. Determine the amount distributed to Jolly, assuming Haines is unable to satisfy the deficiency.

OBJ. 4 EE 12-6 *p. 558*

PE 12-6B Liquidating partnerships—deficiency

Prior to liquidating their partnership, Chow and Fuentes had capital accounts of $85,000 and $165,000, respectively. The partnership assets were sold for $45,000. The partnership had no liabilities. Chow and Fuentes share income and losses equally.

a. Determine the amount of Chow's deficiency.

b. Determine the amount distributed to Fuentes, assuming Chow is unable to satisfy the deficiency.

Learning Objectives *Example Exercises*

OBJ. 6 **EE 12-7** *p. 560*

FAI

PE 12-7A Revenue per employee

Aaron and Rogers, CPAs earned $12,600,000 during 2012 using 90 employees. During 2013, the firm grew revenues to $14,400,000 and expanded the staff to 96 employees.

a. Determine the revenue per employee for each year.

b. Interpret the results.

OBJ. 6 **EE 12-7** *p. 560*

FAI

PE 12-7B Revenue per employee

TechSystems, Architects earned $3,600,000 during 2012 using 20 employees. During 2013, the firm reduced revenues to $3,200,000 and reduced the staff to 16 employees.

a. Determine the revenue per employee for each year.

b. Interpret the results.

Exercises

OBJ. 2

EX 12-1 Record partner's original investment

Amber Moss and Latoya Pell decide to form a partnership by combining the assets of their separate businesses. Moss contributes the following assets to the partnership: cash, $15,000; accounts receivable with a face amount of $159,000 and an allowance for doubtful accounts of $9,700; merchandise inventory with a cost of $100,000; and equipment with a cost of $155,000 and accumulated depreciation of $100,000.

The partners agree that $6,000 of the accounts receivable are completely worthless and are not to be accepted by the partnership, that $11,400 is a reasonable allowance for the uncollectibility of the remaining accounts, that the merchandise inventory is to be recorded at the current market price of $91,450, and that the equipment is to be valued at $62,500.

Journalize the partnership's entry to record Moss's investment.

OBJ. 2

EX 12-2 Record partner's original investment

Jessica Kimble and Carlos Segura form a partnership by combining assets of their former businesses. The following balance sheet information is provided by Kimble, sole proprietorship:

Cash		$ 50,000
Accounts receivable	$100,000	
Less: Allowance for doubtful accounts	5,900	94,100
Land		180,000
Equipment	$ 70,000	
Less: Accumulated depreciation—equipment	43,000	27,000
Total assets		$351,100
Accounts payable		$ 22,500
Notes payable		80,000
Jessica Kimble, capital		248,600
Total liabilities and owner's equity		$351,100

Kimble obtained appraised values for the land and equipment as follows:

Land	$284,000
Equipment	19,000

An analysis of the accounts receivable indicated that the allowance for doubtful accounts should be increased to $7,000.

Journalize the partnership's entry for Kimble's investment.

OBJ. 2

✔ b. Wyatt, $315,000

EX 12-3 Dividing partnership income

Jennifer Wyatt and Megan Truett formed a partnership, investing $330,000 and $110,000, respectively. Determine their participation in the year's net income of $420,000 under each of the following independent assumptions: (a) no agreement concerning division of net income; (b) divided in the ratio of original capital investment; (c) interest at the rate of 8% allowed on original investments and the remainder divided in the ratio of 2:3; (d) salary allowances of $50,000 and $70,000, respectively, and the balance divided equally; (e) allowance of interest at the rate of 8% on original investments, salary allowances of $50,000 and $70,000, respectively, and the remainder divided equally.

OBJ. 2

✔ c. Wyatt, $76,320

EX 12-4 Dividing partnership income

Determine the income participation of Wyatt and Truett, according to each of the five assumptions as to income division listed in Exercise 12-3 if the year's net income is $160,000.

OBJ. 2

EX 12-5 Dividing partnership net loss

Ashley Adams and Michael Rovell formed a partnership in which the partnership agreement provided for salary allowances of $45,000 and $35,000, respectively. Determine the division of a $30,000 net loss for the current year.

OBJ. 2

EX 12-6 Negotiating income-sharing ratio

Sixty-year-old Mary Filmore retired from her computer consulting business in Boston and moved to Florida. There she met 27-year-old Emily Wright, who had just graduated from Eldon Community College with an associate degree in computer science. Mary and Emily formed a partnership called F&W Computer Consultants. Mary contributed $35,000 for startup costs and devoted one-half time to the business. Emily devoted full time to the business. The monthly drawings were $2,000 for Mary and $4,000 for Emily.

At the end of the first year of operations, the two partners disagreed on the division of net income. Mary reasoned that the division should be equal. Although she devoted only one-half time to the business, she contributed all of the startup funds. Emily reasoned that the income-sharing ratio should be 2:1 in her favor because she devoted full time to the business and her monthly drawings were twice those of Mary.

a. Can you identify any flaws in the partners' reasoning regarding the income-sharing ratio?

b. How could an income-sharing agreement resolve this dispute?

OBJ. 2

✔ a. Richards, $85,200

EX 12-7 Dividing LLC income

Joshua Richards and Taylor Clark formed a limited liability company with an operating agreement that provided a salary allowance of $60,000 and $50,000 to each member, respectively. In addition, the operating agreement specified an income-sharing ratio of 3:2. The two members withdrew amounts equal to their salary allowances.

a. Determine the division of $152,000 net income for the year.

b. Provide journal entries to close the (1) income summary and (2) drawing accounts for the two members.

c. If the net income were less than the sum of the salary allowances, how would income be divided between the two members of the LLC?

OBJ. 2, 5

✔ a. Nelson, $269,890

EX 12-8 Dividing LLC net income and statement of members' equity

Macro Media, LLC, has three members: WLKT Partners, Amanda Nelson, and Daily Sentinel Newspaper, LLC. On January 1, 2012, the three members had equity of $250,000, $50,000, and $140,000, respectively. WLKT Partners contributed an additional $50,000 to Macro Media, LLC, on June 1, 2012. Amanda Nelson received an annual salary allowance of $88,700 during 2012. The members' equity accounts are also credited with 10% interest on each member's January 1 capital balance. Any remaining income is to be shared in

the ratio of 4:3:3 among the three members. The net income for Macro Media, LLC, for 2012 was $720,000. Amounts equal to the salary and interest allowances were withdrawn by the members.

a. Determine the division of income among the three members.

b. Prepare the journal entry to close the net income and withdrawals to the individual member equity accounts.

c. Prepare a statement of members' equity for 2012.

d. What are the advantages of an income-sharing agreement for the members of this LLC?

OBJ. 2

EX 12-9 Partner income and withdrawal journal entries

The notes to the annual report for KPMG LLP (U.K.) indicated the following policies regarding the partners' capital:

> *The allocation of profits to those who were partners during the financial year occurs following the finalization of the annual financial statements. During the year, partners receive monthly drawings and, from time to time, additional profit distributions. Both the monthly drawings and profit distributions represent payments on account of current-year profits and are reclaimable from partners until profits have been allocated.*

Assume that the partners draw £40 million per month for 2012 and the net income for the year is £600 million. Journalize the partner capital and partner drawing control accounts in the following requirements:

a. Provide the journal entry for the monthly partner drawing for January.

b. Provide the journal entry to close the income summary account at the end of the year.

c. Provide the journal entry to close the drawing account at the end of the year.

d. Why would partner drawings be considered "reclaimable" until profits have been allocated?

OBJ. 3

EX 12-10 Admitting new partners

Lily Yuan and Kayla Dunn are partners who share in the income equally and have capital balances of $180,000 and $62,500, respectively. Yuan, with the consent of Dunn, sells one-third of her interest to Rachel Burnett. What entry is required by the partnership if the sales price is (a) $40,000? (b) $80,000?

OBJ. 3

✔ b. Faber, $120,000

EX 12-11 Admitting new partners who buy an interest and contribute assets

The capital accounts of Jonathan Faber and Faheem Ahmad have balances of $150,000 and $110,000, respectively. Lauren Wells and Rachel Lee are to be admitted to the partnership. Wells buys one-fifth of Faber's interest for $35,000 and one-fourth of Ahmad's interest for $25,000. Lee contributes $70,000 cash to the partnership, for which she is to receive an ownership equity of $70,000.

a. Journalize the entries to record the admission of (1) Wells and (2) Lee.

b. What are the capital balances of each partner after the admission of the new partners?

OBJ. 3

✔ b. Rivas, $65,000

EX 12-12 Admitting new partner who contributes assets

After the tangible assets have been adjusted to current market prices, the capital accounts of Brandon Newman and Latrell Osbourne have balances of $75,000 and $125,000, respectively. Juan Rivas is to be admitted to the partnership, contributing $50,000 cash to the partnership, for which he is to receive an ownership equity of $65,000. All partners share equally in income.

a. Journalize the entry to record the admission of Rivas, who is to receive a bonus of $15,000.

b. What are the capital balances of each partner after the admission of the new partner?

c. Why are tangible assets adjusted to current market prices, prior to admitting a new partner?

OBJ. 3

EX 12-13 Admitting new partner with bonus

Andrew Hall and Brian Li formed a partnership to provide landscaping services. Hall and Li shared profits and losses equally. After all the tangible assets have been adjusted to current market prices, the capital accounts of Andrew Hall and Brian Li have balances of $54,000 and $71,000, respectively. Kristin Lane has expertise with using the computer to prepare landscape designs, cost estimates, and renderings. Hall and Li deem these skills useful; thus, Lane is admitted to the partnership at a 30% interest for a purchase price of $35,000.

a. Determine the recipient and amount of the partner bonus.

b. Provide the journal entry to admit Lane into the partnership.

c. Why would a bonus be paid in this situation?

OBJ. 3

✔ b. (2) Bonus paid to Mann, $15,000

EX 12-14 Admitting a new LLC member with bonus

HealthSource, LLC, consists of two doctors, Drew and Moore, who share in all income and losses according to a 2:3 income-sharing ratio. Dr. Mann has been asked to join the LLC. Prior to admitting Mann, the assets of HealthSource were revalued to reflect their current market values. The revaluation resulted in medical equipment being increased by $35,000. Prior to the revaluation, the equity balances for Drew and Moore were $201,000 and $289,000, respectively.

a. Provide the journal entry for the asset revaluation.

b. Provide the journal entry for the bonus under the following independent situations:
   1. Mann purchased a 30% interest in HealthSource, LLC, for $285,000.
   2. Mann purchased a 25% interest in HealthSource, LLC, for $155,000.

OBJ. 3

✔ b. (1) Bonus paid to Jenkins, $11,000

EX 12-15 Admitting new partner with bonus

J. Witt and K. Torres are partners in Whole Earth Consultants. Witt and Torres share income equally. L. Jenkins will be admitted to the partnership. Prior to the admission, equipment was revalued downward by $12,000. The capital balances of each partner are $106,000 and $141,000, respectively, prior to the revaluation.

a. Provide the journal entry for the asset revaluation.

b. Provide the journal entry for Jenkins' admission under the following independent situations:
   1. Jenkins purchased a 20% interest for $45,000.
   2. Jenkins purchased a 30% interest for $135,000.

OBJ. 2, 3, 5

✔ Wilson capital, Dec. 31, 2012, $191,700

EX 12-16 Partner bonuses, statement of partners' equity

The partnership of Angel Investor Associates began operations on January 1, 2012, with contributions from two partners as follows:

Scott Wilson	$120,000
Michael Goforth	80,000

The following additional partner transactions took place during the year:

1. In early January, Lance McGinnis is admitted to the partnership by contributing $50,000 cash for a 20% interest.
2. Net income of $250,000 was earned in 2012. In addition, Scott Wilson received a salary allowance of $45,000 for the year. The three partners agree to an income-sharing ratio equal to their capital balances after admitting McGinnis.
3. The partners' withdrawals are equal to half of the increase in their capital balances from salary allowance and income.

Prepare a statement of partnership equity for the year ended December 31, 2012.

OBJ. 3

EX 12-17 Withdrawal of partner

David Winner is to retire from the partnership of Winner and Associates as of March 31, the end of the current fiscal year. After closing the accounts, the capital balances of the partners are as follows: David Winner, $210,000; Alexis Richards, $125,000; and Marcus Williams, $140,000. They have shared net income and net losses in the ratio of 3:2:2. The partners agree that the merchandise inventory should be increased by $32,000, and the allowance for doubtful accounts should be increased by $4,000. Winner agrees to accept a note for $150,000 in partial settlement of his ownership equity. The remainder of his claim is to be paid in cash. Richards and Williams are to share equally in the net income or net loss of the new partnership.

Journalize the entries to record (a) the adjustment of the assets to bring them into agreement with current market prices and (b) the withdrawal of Winner from the partnership.

OBJ. 2, 3, 5

✓ a. 2:3

EX 12-18 Statement of members' equity, admitting new member

The statement of members' equity for Bonanza, LLC, is shown below.

Bonanza, LLC
Statement of Members' Equity
For the Years Ended December 31, 2012 and 2013

	Idaho Properties, LLC, Member Equity	Silver Holdings, LLC, Member Equity	Justin Thomas Member Equity	Total Members' Equity
Members' equity, December 31, 2011	$552,000	$420,500		$ 972,500
Net income	128,000	192,000		320,000
Members' equity, December 31, 2012	$680,000	$612,500		$1,292,500
Thomas contribution, January 1, 2013	8,000	12,000	$250,000	270,000
Net income	90,000	225,000	135,000	450,000
Less member withdrawals	(32,000)	(48,000)	(50,000)	(130,000)
Members' equity, December 31, 2013	$746,000	$801,500	$335,000	$1,882,500

a. What was the income-sharing ratio in 2012?

b. What was the income-sharing ratio in 2013?

c. How much cash did Justin Thomas contribute to Bonanza, LLC, for his interest?

d. Why do the member equity accounts of Idaho Properties, LLC, and Silver Holdings, LLC, have positive entries for Justin Thomas' contribution?

e. What percentage interest of Bonanza did Justin Thomas acquire?

f. Why are withdrawals less than net income?

OBJ. 4

✓ a. $6,000 loss

EX 12-19 Distribution of cash upon liquidation

Lyle and Fisher are partners, sharing gains and losses equally. They decide to terminate their partnership. Prior to realization, their capital balances are $15,000 and $7,000, respectively. After all noncash assets are sold and all liabilities are paid, there is a cash balance of $16,000.

a. What is the amount of a gain or loss on realization?

b. How should the gain or loss be divided between Lyle and Fisher?

c. How should the cash be divided between Lyle and Fisher?

OBJ. 4

✓ Mason, $40,000

EX 12-20 Distribution of cash upon liquidation

Daniel Mason and Srini Kumar, with capital balances of $34,000 and $36,000, respectively, decide to liquidate their partnership. After selling the noncash assets and paying the liabilities, there is $82,000 of cash remaining. If the partners share income and losses equally, how should the cash be distributed?

OBJ. 4

✔ b. $79,500

EX 12-21 Liquidating partnerships—capital deficiency

Gifford, Lawrence, and Ma share equally in net income and net losses. After the partnership sells all assets for cash, divides the losses on realization, and pays the liabilities, the balances in the capital accounts are as follows: Gifford, $32,000 Cr.; Lawrence, $62,500 Cr.; Ma, $15,000 Dr.

a. What term is applied to the debit balance in Ma's capital account?

b. What is the amount of cash on hand?

c. Journalize the transaction that must take place for Gifford and Lawrence to receive cash in the liquidation process equal to their capital account balances.

OBJ. 4

✔ a. Deacon, $650

EX 12-22 Distribution of cash upon liquidation

Deacon, Raines, and Francis arranged to import and sell orchid corsages for a university dance. They agreed to share equally the net income or net loss of the venture. Deacon and Raines advanced $300 and $450 of their own respective funds to pay for advertising and other expenses. After collecting for all sales and paying creditors, the partnership has $1,800 in cash.

a. How should the money be distributed?

b. Assuming that the partnership has only $600 instead of $1,800, do any of the three partners have a capital deficiency? If so, how much?

OBJ. 4

EX 12-23 Liquidating partnerships—capital deficiency

Arnold, Peters, and Suzuki are partners sharing income 3:2:1. After the firm's loss from liquidation is distributed, the capital account balances were: Arnold, $18,000 Dr.; Peters, $75,000 Cr.; and Suzuki, $55,000 Cr. If Arnold is personally bankrupt and unable to pay any of the $18,000, what will be the amount of cash received by Peters and Suzuki upon liquidation?

OBJ. 4

EX 12-24 Statement of partnership liquidation

After closing the accounts on July 1, prior to liquidating the partnership, the capital account balances of Jessup, King, and Oliver are $70,000, $43,000, and $22,000, respectively. Cash, noncash assets, and liabilities total $62,000, $108,000, and $35,000, respectively. Between July 1 and July 29, the noncash assets are sold for $90,000, the liabilities are paid, and the remaining cash is distributed to the partners. The partners share net income and loss in the ratio of 3:2:1. Prepare a statement of partnership liquidation for the period July 1–29, 2012.

OBJ. 4

EX 12-25 Statement of LLC liquidation

Hall, Lang, and Das are members of Evergreen Sales, LLC, sharing income and losses in the ratio of 2:2:1, respectively. The members decide to liquidate the limited liability company. The members' equity prior to liquidation and asset realization on May 1, 2012, are as follows:

Hall	$37,000
Lang	40,000
Das	18,000
Total	$95,000

In winding up operations during the month of May, noncash assets with a book value of $107,000 are sold for $123,000, and liabilities of $25,000 are satisfied. Prior to realization, Evergreen Sales has a cash balance of $13,000.

a. Prepare a statement of LLC liquidation.

b. Provide the journal entry for the final cash distribution to members.

c. What is the role of the income- and loss-sharing ratio in liquidating a LLC?

OBJ. 2, 5

✓ b. Menendez, Capital, Dec. 31, $89,000

EX 12-26 Partnership entries and statement of partners' equity

The capital accounts of Gary Menendez and Melissa Breeden have balances of $75,000 and $55,000, respectively, on January 1, 2012, the beginning of the current fiscal year. On April 10, Menendez invested an additional $12,000. During the year, Menendez and Breeden withdrew $44,000 and $35,000, respectively, and net income for the year was $92,000. The articles of partnership make no reference to the division of net income.

a. Journalize the entries to close (1) the income summary account and (2) the drawing accounts.

b. Prepare a statement of partners' equity for the current year for the partnership of Menendez and Breeden.

OBJ. 6

FAI

EX 12-27 Revenue per professional staff

The accounting firm of Deloitte & Touche is the largest international accounting firm in the world as ranked by total revenues. For the last two years, Deloitte & Touche reported the following for its U.S. operations:

	2009	2008
Revenue (in billions)	$26.1	$27.4
Number of professional staff (including partners)	139,760	133,100

a. For 2009 and 2008, determine the revenue per professional staff. Round to the nearest thousand dollars.

b. Interpret the trend between the two years.

OBJ. 6

FAI

EX 12-28 Revenue per employee

Commerical Cleaning Services, LLC, provides cleaning services for office buildings. The firm has 10 members in the LLC, which did not change between 2012 and 2013. During 2013, the business terminated two commercial contracts. The following revenue and employee information is provided:

	2013	2012
Revenues (in thousands)	$20,000	$22,400
Number of employees (excluding members)	160	200

a. For 2013 and 2012, determine the revenue per employee (excluding members).

b. Interpret the trend between the two years.

Problems Series A

OBJ. 2

✓ 3. Cole net income, $47,200

GL

PR 12-1A Entries and balance sheet for partnership

On August 1, 2012, Wardell Cole and Marva Landers form a partnership. Cole agrees to invest $15,600 in cash and merchandise inventory valued at $62,400. Landers invests certain business assets at valuations agreed upon, transfers business liabilities, and contributes sufficient cash to bring her total capital to $60,000. Details regarding the book values of the business assets and liabilities, and the agreed valuations, follow:

	Landers' Ledger Balance	Agreed-Upon Valuation
Accounts Receivable	$25,300	$23,700
Allowance for Doubtful Accounts	1,500	1,900
Equipment	92,300	57,900
Accumulated Depreciation—Equipment	35,600	
Accounts Payable	20,000	20,000
Notes Payable	30,000	30,000

The partnership agreement includes the following provisions regarding the division of net income: interest on original investments at 10%, salary allowances of $22,500 (Cole) and $30,400 (Landers), and the remainder equally.

Instructions

1. Journalize the entries to record the investments of Cole and Landers in the partnership accounts.
2. Prepare a balance sheet as of August 1, 2012, the date of formation of the partnership of Cole and Landers.
3. After adjustments and the closing of revenue and expense accounts at July 31, 2013, the end of the first full year of operations, the income summary account has a credit balance of $100,500, and the drawing accounts have debit balances of $25,000 (Cole) and $30,400 (Landers). Journalize the entries to close the income summary account and the drawing accounts at July 31, 2013.

OBJ. 2

✔ 1. f. Dyer net income, $41,600

PR 12-2A Dividing partnership income

Dyer and Salinas have decided to form a partnership. They have agreed that Dyer is to invest $120,000 and that Salinas is to invest $40,000. Dyer is to devote one-half time to the business and Salinas is to devote full time. The following plans for the division of income are being considered:

a. Equal division.
b. In the ratio of original investments.
c. In the ratio of time devoted to the business.
d. Interest of 12% on original investments and the remainder equally.
e. Interest of 12% on original investments, salary allowances of $32,000 to Dyer and $64,000 to Salinas, and the remainder equally.
f. Plan (e), except that Salinas is also to be allowed a bonus equal to 20% of the amount by which net income exceeds the total salary allowances.

Instructions

For each plan, determine the division of the net income under each of the following assumptions: (1) net income of $108,000 and (2) net income of $150,000. Present the data in tabular form, using the following columnar headings:

	$108,000		$150,000	
Plan	Dyer	Salinas	Dyer	Salinas

OBJ. 2, 5

✔ 2. Dec. 31 capital—Adkins, $85,000

PR 12-3A Financial statements for partnership

The ledger of Aiden Durant and Jasmine Adkins, attorneys-at-law, contains the following accounts and balances after adjustments have been recorded on December 31, 2012:

Aiden, Durant, Adkins
Trial Balance
December 31, 2012

	Debit Balances	Credit Balances
Cash	42,000	
Accounts Receivable	42,300	
Supplies	1,500	
Land	100,000	
Building	108,100	
Accumulated Depreciation—Building		62,500
Office Equipment	46,000	
Accumulated Depreciation—Office Equipment		19,400
Accounts Payable		29,800
Salaries Payable		3,200
Aiden Durant, Capital		100,000
Aiden Durant, Drawing	45,000	

Jasmine Adkins, Capital		60,000
Jasmine Adkins, Drawing	65,000	
Professional Fees		364,500
Salary Expense	146,000	
Depreciation Expense—Building	14,500	
Property Tax Expense	9,000	
Heating and Lighting Expense	7,200	
Supplies Expense	5,200	
Depreciation Expense—Office Equipment	4,500	
Miscellaneous Expense	3,100	
	639,400	639,400

The balance in Adkins' capital account includes an additional investment of $10,000 made on August 10, 2012.

Instructions

1. Prepare an income statement for 2012, indicating the division of net income. The articles of partnership provide for salary allowances of $40,000 to Durant and $50,000 to Adkins, allowances of 10% on each partner's capital balance at the beginning of the fiscal year, and equal division of the remaining net income or net loss.
2. Prepare a statement of partners' equity for 2012.
3. Prepare a balance sheet as of the end of 2012.

OBJ. 3

✓ 3. Total assets, $282,500

PR 12-4A Admitting new partner

Tosio Kato and Angela Gordon have operated a successful firm for many years, sharing net income and net losses equally. Tricia McCay is to be admitted to the partnership on May 1 of the current year, in accordance with the following agreement:

a. Assets and liabilities of the old partnership are to be valued at their book values as of April 30, except for the following:
   - Accounts receivable amounting to $2,400 are to be written off, and the allowance for doubtful accounts is to be increased to 5% of the remaining accounts.
   - Merchandise inventory is to be valued at $63,200.
   - Equipment is to be valued at $141,900.

b. McCay is to purchase $60,000 of the ownership interest of Gordon for $65,000 cash and to contribute another $35,000 cash to the partnership for a total ownership equity of $95,000.

The post-closing trial balance of Kato and Gordon as of April 30 is as follows:

Kato and Gordon
Post-Closing Trial Balance
April 30, 2012

	Debit Balances	Credit Balances
Cash	6,000	
Accounts Receivable	38,400	
Allowance for Doubtful Accounts		1,400
Merchandise Inventory	59,000	
Prepaid Insurance	2,200	
Equipment	165,000	
Accumulated Depreciation—Equipment		51,700
Accounts Payable		9,500
Notes Payable		40,000
Tosio Kato, Capital		90,000
Angela Gordon, Capital		78,000
	270,600	270,600

Instructions

1. Journalize the entries as of April 30 to record the revaluations, using a temporary account entitled Asset Revaluations. The balance in the accumulated depreciation account is to be eliminated. After journalizing the revaluations, close the balance of the asset revaluations account to the capital accounts of Tosio Kato and Angela Gordon.
2. Journalize the additional entries to record McCay's entrance to the partnership on May 1, 2012.
3. Present a balance sheet for the new partnership as of May 1, 2012.

OBJ. 4

PR 12-5A Statement of partnership liquidation

After the accounts are closed on July 3, 2012, prior to liquidating the partnership, the capital accounts of Rebecca Adams, Austin Cooper, and Ricardo Ruiz are $22,400, $5,300, and $31,900, respectively. Cash and noncash assets total $8,800 and $68,800, respectively. Amounts owed to creditors total $18,000. The partners share income and losses in the ratio of 2:1:1. Between July 3 and July 29, the noncash assets are sold for $33,200, the partner with the capital deficiency pays his deficiency to the partnership, and the liabilities are paid.

Instructions

1. Prepare a statement of partnership liquidation, indicating (a) the sale of assets and division of loss, (b) the payment of liabilities, (c) the receipt of the deficiency (from the appropriate partner), and (d) the distribution of cash.
2. Assume the partner with the capital deficiency declares bankruptcy and is unable to pay the deficiency. Journalize the entries to (a) allocate the partner's deficiency and (b) distribute the remaining cash.

OBJ. 4

PR 12-6A Statement of partnership liquidation

On October 1, 2012, the firm of Sams, Price, and Ladd decided to liquidate their partnership. The partners have capital balances of $54,000, $77,000, and $12,000, respectively. The cash balance is $26,000, the book values of noncash assets total $155,000, and liabilities total $38,000. The partners share income and losses in the ratio of 2:2:1.

Instructions

1. Prepare a statement of partnership liquidation, covering the period October 1–30 2012, for each of the following independent assumptions:
   a. All of the noncash assets are sold for $212,000 in cash, the creditors are paid, and the remaining cash is distributed to the partners.
   b. All of the noncash assets are sold for $70,000 in cash, the creditors are paid, the partner with the debit capital balance pays the amount owed to the firm, and the remaining cash is distributed to the partners.
2. Assume the partner with the capital deficiency in part (b) above declares bankruptcy and is unable to pay the deficiency. Journalize the entries to (a) allocate the partner's deficiency and (b) distribute the remaining cash.

Problems Series B

OBJ. 2

✓ 3. Harber net income, $56,900

PR 12-1B Entries and balance sheet for partnership

On June 1, 2011, Anne Harber and Heather Lamb form a partnership. Harber agrees to invest $16,000 cash and merchandise inventory valued at $42,000. Lamb invests certain business assets at valuations agreed upon, transfers business liabilities, and contributes sufficient cash to bring her total capital to $80,000. Details regarding the book values of the business assets and liabilities, and the agreed valuations, follow:

	Lamb's Ledger Balance	Agreed-Upon Balance
Accounts Receivable	$21,400	$19,400
Allowance for Doubtful Accounts	1,000	1,300
Merchandise Inventory	24,300	25,900
Equipment	44,000	34,000
Accumulated Depreciation—Equipment	14,000	
Accounts Payable	7,000	7,000
Notes Payable	5,000	5,000

The partnership agreement includes the following provisions regarding the division of net income: interest of 10% on original investments, salary allowances of $36,000 (Harber) and $22,000 (Lamb), and the remainder equally.

Instructions

1. Journalize the entries to record the investments of Harber and Lamb in the partnership accounts.
2. Prepare a balance sheet as of June 1, 2011, the date of formation of the partnership of Harber and Lamb.
3. After adjustments and the closing of revenue and expense accounts at May 31, 2012, the end of the first full year of operations, the income summary account has a credit balance of $102,000, and the drawing accounts have debit balances of $40,000 (Harber) and $25,000 (Lamb). Journalize the entries to close the income summary account and the drawing accounts at May 31, 2012.

OBJ. 2

✔ 1. f. Snyder net income, $128,900

PR 12-2B Dividing partnership income

Tim Snyder and Jay Wise have decided to form a partnership. They have agreed that Snyder is to invest $30,000 and that Wise is to invest $40,000. Snyder is to devote full time to the business, and Wise is to devote one-half time. The following plans for the division of income are being considered:

a. Equal division.
b. In the ratio of original investments.
c. In the ratio of time devoted to the business.
d. Interest of 10% on original investments and the remainder in the ratio of 3:2.
e. Interest of 10% on original investments, salary allowances of $34,000 to Snyder and $17,000 to Wise, and the remainder equally.
f. Plan (e), except that Snyder is also to be allowed a bonus equal to 20% of the amount by which net income exceeds the total salary allowances.

Instructions

For each plan, determine the division of the net income under each of the following assumptions: (1) net income of $210,000 and (2) net income of $84,000. Present the data in tabular form, using the following columnar headings:

	$210,000		$84,000	
Plan	Snyder	Wise	Snyder	Wise

OBJ. 2, 5

✔ 2. Dec. 31 capital—Hoffman, $201,200

PR 12-3B Financial statements for partnerships

The ledger of Jin Ding and Paul Hoffman, attorneys-at-law, contains the following accounts and balances after adjustments have been recorded on December 31, 2012:

Ding and Hoffman
Trial Balance
December 31, 2012

	Debit Balances	Credit Balances
Cash	26,900	
Accounts Receivable	41,300	
Supplies	6,700	
Land	140,000	
Building	160,000	
Accumulated Depreciation—Building		52,000
Office Equipment	62,000	
Accumulated Depreciation—Office Equipment		21,300
Accounts Payable		3,400
Salaries Payable		5,200
Jin Ding, Capital		130,000
Jin Ding, Drawing	50,000	
Paul Hoffman, Capital		170,000
Paul Hoffman, Drawing	60,000	
Professional Fees		583,200
Salary Expense	315,700	
Depreciation Expense—Building	75,000	
Heating and Lighting Expense	11,900	
Depreciation Expense—Office Equipment	6,700	
Property Tax Expense	3,500	
Supplies Expense	3,400	
Miscellaneous Expense	2,000	
	965,100	965,100

The balance in Hoffman's capital account includes an additional investment of $20,000 made on April 5, 2012.

Instructions

1. Prepare an income statement for the current fiscal year, indicating the division of net income. The articles of partnership provide for salary allowances of $60,000 to Ding and $75,000 to Hoffman, allowances of 12% on each partner's capital balance at the beginning of the fiscal year, and equal division of the remaining net income or net loss.
2. Prepare a statement of partners' equity for 2012.
3. Prepare a balance sheet as of the end of 2012.

OBJ. 3

✔ 3. Total assets, $227,300

PR 12-4B Admitting new partner

Anthony Simpson and Shawna Ryder have operated a successful firm for many years, sharing net income and net losses equally. Blaine Evans is to be admitted to the partnership on June 1 of the current year, in accordance with the following agreement:

a. Assets and liabilities of the old partnership are to be valued at their book values as of May 31, except for the following:
   - Accounts receivable amounting to $3,400 are to be written off, and the allowance for doubtful accounts is to be increased to 5% of the remaining accounts.
   - Merchandise inventory is to be valued at $64,300.
   - Equipment is to be valued at $88,000.

b. Evans is to purchase $32,000 of the ownership interest of Ryder for $37,500 cash and to contribute $40,000 cash to the partnership for a total ownership equity of $72,000.

The post-closing trial balance of Simpson and Ryder as of May 31 follows.

Simpson and Ryder
Post-Closing Trial Balance
May 31, 2012

	Debit Balances	Credit Balances
Cash	14,400	
Accounts Receivable	21,400	
Allowance for Doubtful Accounts		500
Merchandise Inventory	58,600	
Prepaid Insurance	3,500	
Equipment	97,000	
Accumulated Depreciation—Equipment		25,700
Accounts Payable		14,700
Notes Payable		12,000
Anthony Simpson, Capital		80,000
Shawna Ryder, Capital		62,000
	194,900	194,900

Instructions

1. Journalize the entries as of May 31 to record the revaluations, using a temporary account entitled Asset Revaluations. The balance in the accumulated depreciation account is to be eliminated. After journalizing the revaluations, close the balance of the asset revaluations account to the capital accounts of Anthony Simpson and Shawna Ryder.
2. Journalize the additional entries to record Evans' entrance to the partnership on May 31, 2012.
3. Present a balance sheet for the new partnership as of June 1, 2012.

OBJ. 4

PR 12-5B Statement of partnership liquidation

After the accounts are closed on September 10, 2012, prior to liquidating the partnership, the capital accounts of Randy Campbell, Ken Thayer, and Linda Tipton are $38,000, $6,400, and $28,500, respectively. Cash and noncash assets total $17,700 and $64,200, respectively. Amounts owed to creditors total $9,000. The partners share income and losses in the ratio of 1:1:2. Between September 10 and September 30, the noncash assets are sold for $35,000, the partner with the capital deficiency pays his or her deficiency to the partnership, and the liabilities are paid.

Instructions

1. Prepare a statement of partnership liquidation, indicating (a) the sale of assets and division of loss, (b) the payment of liabilities, (c) the receipt of the deficiency (from the appropriate partner), and (d) the distribution of cash.
2. Assume the partner with the capital deficiency declares bankruptcy and is unable to pay the deficiency. Journalize the entries to (a) allocate the partner's deficiency and (b) distribute the remaining cash.

OBJ. 4

PR 12-6B Statement of partnership liquidation

On June 3, 2012, the firm of Lyon, Malone, and Chen decided to liquidate their partnership. The partners have capital balances of $12,000, $76,000, and $104,000, respectively. The cash balance is $19,000, the book values of noncash assets total $218,000, and liabilities total $45,000. The partners share income and losses in the ratio of 1:2:2.

Instructions

1. Prepare a statement of partnership liquidation, covering the period June 3–29, 2012, for each of the following independent assumptions:
   a. All of the noncash assets are sold for $272,000 in cash, the creditors are paid, and the remaining cash is distributed to the partners.
   b. All of the noncash assets are sold for $105,000 in cash, the creditors are paid, the partner with the debit capital balance pays the amount owed to the firm, and the remaining cash is distributed to the partners.
2. Assume the partner with the capital deficiency in part (b) above declares bankruptcy and is unable to pay the deficiency. Journalize the entries to (a) allocate the partner's deficiency and (b) distribute the remaining cash.

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Excel Success Special Activities

SA 12-1 Division of partnership income

Dr. Preston and Dr. Patel are partners in a medical practice. The partnership agreement provides for annual salary allowances of $100,000 to Preston and $200,000 to Patel, along with a 10% interest allowance based on each partner's January 1 capital balance. Remaining profits or losses are to be shared equally. Open file *SA12-1_2e* and determine the division of the partnership income in each of the following independent cases:

Case 1: Partnership income totaled $650,000. Preston's beginning Capital account balance was $1,200,000, and Patel's was $2,000,000.

Case 2: Partnership income totaled $650,000. Preston's beginning Capital account balance was $2,500,000, and Patel's was $700,000.

When you have completed the division of partnership income for both cases 1 and 2, perform a "save as," replacing the entire file name with the following:

SA12-1_2e[your first name initial]_[your last name]

SA 12-2 Division of partnership income

Jill Ahmad and Ramon Garcia are partners in an auto repair business. They have agreed to share profits and losses in the following manner. Jill, who is a better mechanic than Ramon, will receive a $1,000 per month salary allowance. Ramon will not receive a salary allowance, but both partners will be given a 12% interest allowance on their beginning capital account balances. Remaining profits and losses will be shared in the ratio of 1:2 (one third to Jill, and two thirds to Ramon).

Jill's beginning Capital account balance is $25,000, Ramon's beginning Capital account balance is $200,000, and the annual net income is $90,000.

Open file *SA12-2_2e* to determine the division of the partnership income.

When you have completed the division of partnership income, perform a "save as," replacing the entire file name with the following:

SA12-2_2e[your first name initial]_[your last name]

SA 12-3 Division of partnership income

Information taken from the partnership records of Kuwanti and Carlita, attorneys-at-law, is presented below.

	Kuwanti	Carlita	Total
Beginning capital balance	$800,000	$700,000	$1,500,000
Monthly salary allowance	$ 12,500	$ 6,250	$ 18,750
Profit and loss sharing ratio	2	1	3

The partners have agreed to the monthly salary allowances shown above and to interest allowances equal to 15% of each partner's beginning capital account balance. Remaining profits and losses are to be divided in the ratio of 2:1.

Scenario 1: Open file *SA12-3_2e* to determine the amount each partner will receive if the annual partnership income is $600,000.

Scenario 2: Create a new spreadsheet that determines the amount each partner will receive if the annual partnership income is $150,000.

When you have completed the division of partnership income, perform a "save as," replacing the entire file name with the following:

SA12-3_2e[your first name initial]_[your last name]

CHAPTER 13


One

COMMON STOCK

HASBRO, INC.

FULLY PAID AND NON-ASSESSABLE SHARES OF THE COMMON STOCK OF THE PAR VALUE OF 50¢ EACH OF

Hasbro, Inc. Transfers of these shares will be registered on the books of the Corporation maintained for that purpose [illegible] *not valid unless countersigned* [illegible]

CERTIFICATE OF STOCK

Witness the seal of the Corporation and the signatures of its duly authorized officers.

Dated: March 1, 2005

Barry Nagle

CHAIRMAN OF THE BOARD

EquiServe Trust Company, N.A.

d by permission of Hasbro

Corporations: Organization, Stock Transactions, and Dividends

Hasbro

If you purchase a share of stock from **Hasbro**, you own a small interest in the company. You may request a Hasbro stock certificate as an indication of your ownership.

As you may know, Hasbro is one of the world's largest toy manufacturers and produces popular children's toys such as G.I. Joe, Play-Doh, Tonka toys, Mr. Potato Head, and NERF. In addition, Hasbro manufactures family entertainment products such as Monopoly, Scrabble, and Trivial Pursuit under the Milton Bradley and Parker Brothers labels. In fact, the stock certificate of Hasbro has a picture of Mr. Monopoly, the Monopoly game icon, printed on it.

Purchasing a share of stock from Hasbro may be a great gift idea for the "hard-to-shop-for person." However, a stock certificate represents more than just a picture that you can frame. In fact, the stock certificate is a document that reflects legal ownership of the future financial prospects of Hasbro. In addition, as a shareholder, it represents your claim against the assets and earnings of the corporation.

If you are purchasing Hasbro stock as an investment, you should analyze Hasbro's financial statements and management's plans for the future. For example, Hasbro has a unique relationship with Disney that allows it to produce and sell licensed Disney products. Should this Disney relationship affect how much you are willing to pay for the stock? Also, you might want to know if Hasbro plans to pay cash dividends or whether management is considering issuing additional shares of stock.

This chapter describes and illustrates the nature of corporations including the accounting for stock and dividends. This discussion will aid you in making decisions such as whether or not to buy Hasbro stock.

Learning Objectives

After studying this chapter, you should be able to:		Example Exercises	Page
OBJ. 1	Describe the nature of the corporate form of organization.		
	Nature of a Corporation		
	Characteristics of a Corporation		
	Forming a Corporation		
OBJ. 2	Describe the two main sources of stockholders' equity.		
	Stockholders' Equity		
OBJ. 3	Describe and illustrate the characteristics of stock, classes of stock, and entries for issuing stock.		
	Paid-In Capital from Issuing Stock		
	Characteristics of Stock		
	Classes of Stock	EE 13-1	587
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OBJ. 4	Describe and illustrate the accounting for cash dividends and stock dividends.		
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OBJ. 5	Describe and illustrate the accounting for treasury stock transactions.		
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	Statement of Stockholders' Equity		
	Reporting Stockholders' Equity for Mornin' Joe		
OBJ. 7	Describe the effect of stock splits on corporate financial statements.		
	Stock Splits		
OBJ. 8	Describe and illustrate the use of earnings per share in evaluating a company's profitability.		
	Financial Analysis and Interpretation: Earnings per Share	EE 13-8	602

At a Glance 13 Page 603

OBJ. 1 Describe the nature of the corporate form of organization.

Nature of a Corporation

Most large businesses are organized as corporations. As a result, corporations generate more than 90% of the total business dollars in the United States. In contrast, most small businesses are organized as proprietorships, partnerships, or limited liability companies.

Characteristics of a Corporation

A corporation was defined in the Dartmouth College case of 1819, in which Chief Justice Marshall of the U.S. Supreme Court stated: "A corporation is an artificial being, invisible, intangible, and existing only in contemplation of the law."

A *corporation* is a legal entity, distinct and separate from the individuals who create and operate it. As a legal entity, a corporation may acquire, own, and dispose of property in its own name. It may also incur liabilities and enter into contracts. Most importantly, it can sell shares of ownership, called **stock**. This characteristic gives corporations the ability to raise large amounts of capital.

The **stockholders** or *shareholders* who own the stock own the corporation. They can buy and sell stock without affecting the corporation's operations or continued existence. Corporations whose shares of stock are traded in public markets are called *public corporations*. Corporations whose shares are not traded publicly are usually owned by a small group of investors and are called *nonpublic* or *private corporations*.

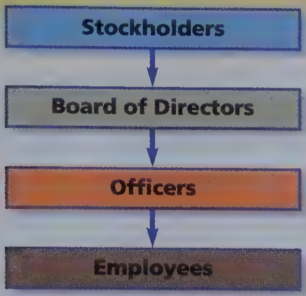
The stockholders of a corporation have *limited liability*. This means that creditors usually may not go beyond the assets of the corporation to satisfy their claims. Thus, the financial loss that a stockholder may suffer is limited to the amount invested.

The stockholders control a corporation by electing a *board of directors*. This board meets periodically to establish corporate policies. It also selects the chief executive

officer (CEO) and other major officers to manage the corporation's day-to-day affairs. Exhibit 1 shows the organizational structure of a corporation.

EXHIBIT 1

Organizational Structure of a Corporation



As a separate entity, a corporation is subject to taxes. For example, corporations must pay federal income taxes on their income.[1] Thus, corporate income that is distributed to stockholders in the form of *dividends* has already been taxed. In turn, stockholders must pay income taxes on the dividends they receive. This *double taxation* of corporate earnings is a major disadvantage of the corporate form. The advantages and disadvantages of the corporate form are listed in Exhibit 2.

Note:
Corporations have a separate legal existence, transferable units of ownership, and limited stockholder liability.

EXHIBIT 2 **Advantages and Disadvantages of the Corporate Form**

Advantages	**Explanation**
Separate legal existence	A corporation exists separately from its owners.
Continuous life	A corporation's life is separate from its owners; therefore, it exists indefinitely.
Raising large amounts of capital	The corporate form is suited for raising large amounts of money from shareholders.
Ownership rights are easily transferable	A corporation sells shares of ownership, called *stock*. The stockholders of a public company can transfer their shares of stock to other stockholders through stock markets, such as the New York Stock Exchange.
Limited liability	A corporation's creditors usually may not go beyond the assets of the corporation to satisfy their claims. Thus, the financial loss that a stockholder may suffer is limited to the amount invested.
Disadvantages	**Explanation**
Owner is separate from management	Stockholders control management through a board of directors. The board of directors should represent shareholder interests; however, the board is often more closely tied to management than to shareholders. As a result, the board of directors and management may not always behave in the best interests of stockholders.
Double taxation of dividends	As a separate legal entity, a corporation is subject to taxation. Thus, net income distributed as dividends will be taxed once at the corporation level, and then again at the individual level.
Regulatory costs	Corporations must satisfy many requirements such as those required by the Sarbanes-Oxley Act of 2002.

Forming a Corporation

The first step in forming a corporation is to file an *application of incorporation* with the state. State incorporation laws differ, and corporations often organize in those states with the more favorable laws. For this reason, more than half of the largest companies are incorporated in Delaware. Exhibit 3 lists some corporations, their states of incorporation and the location of their headquarters.

After the application of incorporation has been approved, the state grants a *charter* or *articles of incorporation*. The articles of incorporation formally create the corporation.[2]

---

[1] A majority of states also require corporations to pay income taxes.

[2] The articles of incorporation may also restrict a corporation's activities in certain areas, such as owning certain types of real estate, conducting certain types of business activities, or purchasing its own stock.

EXHIBIT 3

Examples of Corporations and Their States of Incorporation

Corporation	State of Incorporation	Headquarters
Caterpillar	Delaware	Peoria, Ill.
Delta Air Lines	Delaware	Atlanta, Ga.
The Dow Chemical Company	Delaware	Midland, Mich.
General Electric Company	New York	Fairfield, Conn.
The Home Depot	Delaware	Atlanta, Ga.
Kellogg Company	Delaware	Battle Creek, Mich.
3M	Delaware	St. Paul, Minn.
R.J. Reynolds Tobacco Company	Delaware	Winston-Salem, N.C.
Starbucks Corporation	Washington	Seattle, Wash.
Sun Microsystems, Inc.	Delaware	Palo Alto, Calif.
The Washington Post Company	Delaware	Washington, D.C.
Whirlpool Corporation	Delaware	Benton Harbor, Mich.

The corporate management and board of directors then prepare a set of *bylaws*, which are the rules and procedures for conducting the corporation's affairs.

Costs may be incurred in organizing a corporation. These costs include legal fees, taxes, state incorporation fees, license fees, and promotional costs. Such costs are debited to an expense account entitled *Organizational Expenses*.

To illustrate, a corporation's organizing costs of $8,500 on January 5 are recorded as shown below.

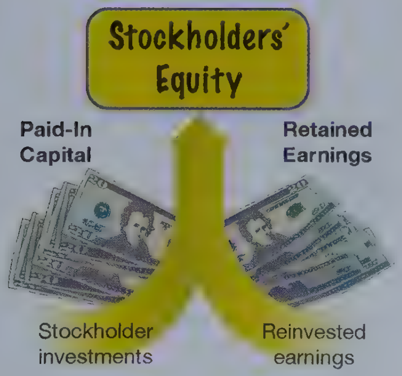
Jan.	5	Organizational Expenses	8,500	
		Cash		8,500
		Paid costs of organizing the corporation.		

Stockholders' Equity

OBJ 2 Describe the two main sources of stockholders' equity.

The owners' equity in a corporation is called **stockholders' equity**, *shareholders' equity, shareholders' investment*, or *capital*. On the balance sheet, stockholders' equity is reported by its two main sources.

1. Capital contributed to the corporation by the stockholders, called **paid-in capital** or *contributed capital*.
2. Net income retained in the business, called **retained earnings**.



A Stockholders' Equity section of a balance sheet is shown below.[3]

Stockholders' Equity

Paid-in capital:		
Common stock	$330,000	
Retained earnings	80,000	
Total stockholders' equity		$410,000

The paid-in capital contributed by the stockholders is recorded in separate accounts for each class of stock. If there is only one class of stock, the account is entitled *Common Stock* or *Capital Stock*.

Retained earnings is a corporation's cumulative net income that has not been distributed as dividends. **Dividends** are distributions of a corporation's earnings to stockholders. Sometimes retained earnings that are not distributed as dividends are referred to in the financial statements as *earnings retained for use in the business* and *earnings reinvested in the business*.

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[3] The reporting of stockholders' equity is further discussed and illustrated later in this chapter.

Net income increases retained earnings, while a net loss and dividends decrease retained earnings. The net increase or decrease in retained earnings for a period is recorded by the following closing entries:

1. The balance of Income Summary (the net income or net loss) is transferred to Retained Earnings. For *net income,* Income Summary is debited and Retained Earnings is credited. For a *net loss,* Retained Earnings is debited and Income Summary is credited.
2. The balance of the dividends account, which is similar to the drawing account for a proprietorship, is transferred to Retained Earnings. Retained Earnings is debited and Dividends is credited for the balance of the dividends account.

Most companies generate net income. In addition, most companies do not pay out all of their net income in dividends. As a result, Retained Earnings normally has a credit balance. However, in some cases, a debit balance in Retained Earnings may occur. A debit balance in Retained Earnings is called a **deficit**. Such a balance often results from accumulated net losses. In the Stockholders' Equity section, a deficit is deducted from paid-in capital in determining total stockholders' equity.

The balance of Retained Earnings does not represent surplus cash or cash left over for dividends. This is because cash generated from operations is normally used to improve or expand operations. As cash is used, its balance decreases; however, the balance of the retained earnings account is unaffected. As a result, over time the balance in Retained Earnings becomes less and less related to the balance of Cash.

Paid-In Capital from Issuing Stock

OBJ. 3 Describe and illustrate the characteristics of stock, classes of stock, and entries for issuing stock.

The two main sources of stockholders' equity are paid-in capital (or contributed capital) and retained earnings. The main source of paid-in capital is from issuing stock.

Characteristics of Stock

The number of shares of stock that a corporation is *authorized* to issue is stated in its charter. The term *issued* refers to the shares issued to the stockholders. A corporation may reacquire some of the stock that it has issued. The stock remaining in the hands of stockholders is then called **outstanding stock**. The relationship between authorized, issued, and outstanding stock is shown in the graphic at the right.

Number of shares authorized, issued, and outstanding

Upon request, corporations may issue stock certificates to stockholders to document their ownership. Printed on a stock certificate is the name of the company, the name of the stockholder, and the number of shares owned. The stock certificate may also indicate a dollar amount assigned to each share of stock, called **par** value. Stock may be issued without par, in which case it is called *no-par stock.* In some states, the board of directors of a corporation is required to assign a *stated value* to no-par stock.

Corporations have limited liability and, thus, creditors have no claim against stockholders' personal assets. To protect creditors, however, some states require corporations to maintain a minimum amount of paid-in capital. This minimum amount, called *legal capital,* usually includes the par or stated value of the shares issued.

The major rights that accompany ownership of a share of stock are as follows:

1. The right to vote in matters concerning the corporation.
2. The right to share in distributions of earnings.
3. The right to share in assets upon liquidation.

These stock rights normally vary with the class of stock.

Classes of Stock

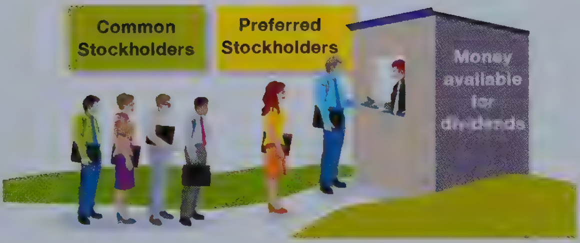
When only one class of stock is issued, it is called **common stock**. Each share of common stock has equal rights.

Note:
The two primary classes of paid-in capital are common stock and preferred stock.

A corporation may also issue one or more classes of stock with various preference rights such as a preference to dividends. Such a stock is called a **preferred stock**. The dividend rights of preferred stock are stated either as dollars per share or as a percent of par. For example, a $50 par value preferred stock with a $4 per share dividend may be described as either:[4]

$4 preferred stock, $50 par
or
8% preferred stock, $50 par

Because they have first rights (preference) to any dividends, preferred stockholders have a greater chance of receiving dividends than common stockholders. However, since dividends are normally based on earnings, a corporation cannot guarantee dividends even to preferred stockholders.



The payment of dividends is authorized by the corporation's board of directors. When authorized, the directors are said to have *declared* a dividend.

Cumulative preferred stock has a right to receive regular dividends that were not declared (paid) in prior years. Noncumulative preferred stock does not have this right.

Cumulative preferred stock dividends that have not been paid in prior years are said to be **in arrears**. Any preferred dividends in arrears must be paid before any common stock dividends are paid. In addition, any dividends in arrears are normally disclosed in notes to the financial statements.

To illustrate, assume that a corporation has issued the following preferred and common stock:

1,000 shares of $4 cumulative preferred stock, $50 par
4,000 shares of common stock, $15 par

The corporation was organized on January 1, 2010, and paid no dividends in 2010 and 2011. In 2012, the corporation paid $22,000 in dividends, of which $12,000 was paid to preferred stockholders and $10,000 was paid to common stockholders as shown below.

Total dividends paid		$ 22,000
Preferred stockholders:		
2010 dividends in arrears (1,000 shares × $4)	$4,000	
2011 dividends in arrears (1,000 shares × $4)	4,000	
2012 dividend (1,000 shares × $4)	4,000	
Total preferred dividends paid		(12,000)
Dividends available to common stockholders		$10,000

As a result, preferred stockholders received $12.00 per share ($12,000 ÷ 1,000 shares) in dividends, while common stockholders received $2.50 per share ($10,000 ÷ 4,000 shares).

In addition to dividend preference, preferred stock may be given preferences to assets if the corporation goes out of business and is liquidated. However, claims of creditors must be satisfied first. Preferred stockholders are next in line to receive any remaining assets, followed by the common stockholders.

Issuing Stock

A separate account is used for recording the amount of each class of stock issued to investors in a corporation. For example, assume that a corporation is authorized to issue 10,000 shares of $100 par preferred stock and 100,000 shares of $20 par common stock. The corporation issued 5,000 shares of preferred stock and 50,000

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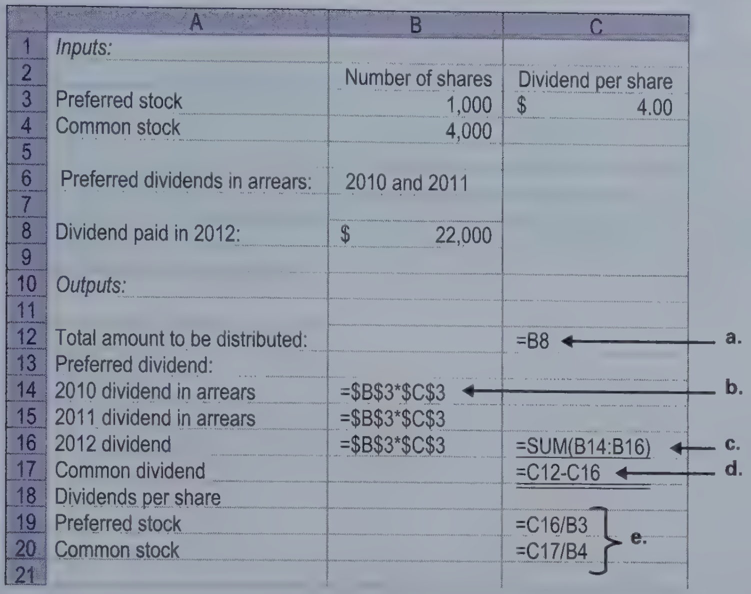
[4] In some cases, preferred stock may receive additional dividends if certain conditions are met. Such stock, called *participating preferred stock*, is not often issued.

excel success

The calculation for the dividends per share can be accomplished using a spreadsheet as follows:



	A	B	C
1	*Inputs:*		
2		Number of shares	Dividend per share
3	Preferred stock	1,000	$ 4.00
4	Common stock	4,000	
5			
6	Preferred dividends in arrears:	2010 and 2011	
7			
8	Dividend paid in 2012:	$ 22,000	
9			
10	*Outputs:*		
11			
12	Total amount to be distributed:		=B8
13	Preferred dividend:		
14	2010 dividend in arrears	=$B$3*$C$3	
15	2011 dividend in arrears	=$B$3*$C$3	
16	2012 dividend	=$B$3*$C$3	=SUM(B14:B16)
17	Common dividend		=C12-C16
18	Dividends per share		
19	Preferred stock		=C16/B3
20	Common stock		=C17/B4
21			

The spreadsheet is designed with inputs and outputs. The inputs are the stock and dividend information, and the output is the distribution of the dividend to the two classes of stock.

a. Enter in cell C12 the cell reference for the dividend paid in 2010, =B8.

b. Enter in cell B14 the formula for the 2008 dividend in arrears, =$B$3*$C$3. Use the dollar sign ($) to fix the cell reference. This will allow you to copy this formula from B14 to B15:B16.

c. Enter in cell C16 the formula for the sum of the preferred dividends to be distributed, =SUM(B14:B16).

d. Enter in cell C17 the formula for the remaining common dividend, =C12-C16.

e. Enter in cells C19 and 20 the dividends per share for the two classes of stock by dividing the total dividend by the number of shares. The formula from C19 can be copied to C20.

TryIt Go to the hands-on ***Excel Tutor*** for this example!

TryIt This Excel Success example uses an Excel function referred to as cell referencing. Go to the ***Excel Tutor*** titled **Absolute & Relative Cell References** for additional help on this useful Excel function!

Example Exercise 13-1 Dividends per Share

OBJ 3

Sandpiper Company has 20,000 shares of 1% cumulative preferred stock of $100 par and 100,000 shares of $50 par common stock. The following amounts were distributed as dividends:

Year 1	$10,000
Year 2	45,000
Year 3	80,000

Determine the dividends per share for preferred and common stock for each year.

Follow My Example 13-1

	Year 1	Year 2	Year 3
Amount distributed	$10,000	$45,000	$80,000
Preferred dividend (20,000 shares)	10,000	30,000*	20,000
Common dividend (100,000 shares)	$ 0	$15,000	$60,000
*($10,000 + $20,000)			
Dividends per share:			
Preferred stock	$0.50	$1.50	$1.00
Common stock	None	$0.15	$0.60

Practice Exercises: **PE 13-1A, PE 13-1B**

shares of common stock at par for cash. The corporation's entry to record the stock issue is as follows:[5]

		Cash		1,500,000	
		Preferred Stock			500,000
		Common Stock			1,000,000
		Issued preferred stock and common stock at par for cash.			

Stock is often issued by a corporation at a price other than its par. The price at which stock is sold depends on a variety of factors, such as the following:

1. The financial condition, earnings record, and dividend record of the corporation.
2. Investor expectations of the corporation's potential earning power.
3. General business and economic conditions and expectations.

If stock is issued (sold) for a price that is more than its par, the stock has been sold at a **premium**. For example, if common stock with a par of $50 is sold for $60 per share, the stock has sold at a premium of $10.

If stock is issued (sold) for a price that is less than its par, the stock has been sold at a **discount**. For example, if common stock with a par of $50 is sold for $45 per share, the stock has sold at a discount of $5. Many states do not permit stock to be sold at a discount. In other states, stock may be sold at a discount in only unusual cases. Since stock is rarely sold at a discount, it is not illustrated.

In order to distribute dividends, financial statements, and other reports, a corporation must keep track of its stockholders. Large public corporations normally use a financial institution, such as a bank, for this purpose.[6] In such cases, the financial institution is referred to as a *transfer agent* or *registrar*.

Premium on Stock

When stock is issued at a premium, Cash is debited for the amount received. Common Stock or Preferred Stock is credited for the par amount. The excess of the amount paid over par is part of the paid-in capital. An account entitled *Paid-In Capital in Excess of Par* is credited for this amount.

To illustrate, assume that Caldwell Company issues 2,000 shares of $50 par preferred stock for cash at $55. The entry to record this transaction is as follows:

		Cash		110,000	
		Preferred Stock			100,000
		Paid-In Capital in Excess of Par—Preferred Stock			10,000
		Issued $50 par preferred stock at $55.			

When stock is issued in exchange for assets other than cash, such as land, buildings, and equipment, the assets acquired are recorded at their fair market value. If this value cannot be determined, the fair market price of the stock issued is used.

To illustrate, assume that a corporation acquired land with a fair market value that cannot be determined. In exchange, the corporation issued 10,000 shares of its

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[5] The accounting for investments in stocks from the point of view of the investor is discussed in Chapter 15.

[6] Small corporations may use a subsidiary ledger, called a *stockholders ledger*. in this case, the stock accounts (Preferred Stock and Common Stock) are controlling accounts for the subsidiary ledger.

$10 par common. If the stock has a market price of $12 per share, the transaction is recorded as follows:

		Land		120,000	
		Common Stock			100,000
		Paid-In Capital in Excess of Par			20,000
		Issued $10 par common stock, valued at $12 per share, for land.			

No-Par Stock

In most states, no-par preferred and common stock may be issued. When no-par stock is issued, Cash is debited and Common Stock is credited for the proceeds. As no-par stock is issued over time, this entry is the same even if the issuing price varies.

To illustrate, assume that on January 9 a corporation issues 10,000 shares of no-par common stock at $40 a share. On June 27, the corporation issues an additional 1,000 shares at $36. The entries to record these issuances of the no-par stock are as follows:

Jan.	9	Cash		400,000	
		Common Stock			400,000
		Issued 10,000 shares of no-par common at $40.			
June	27	Cash		36,000	
		Common Stock			36,000
		Issued 1,000 shares of no-par common at $36.			

In some states, no-par stock may be assigned a *stated value per share.* The stated value is recorded like a par value. Any excess of the proceeds over the stated value is credited to *Paid-In Capital in Excess of Stated Value.*

Business Connection

CISCO SYSTEMS, INC.

Cisco Systems, Inc., manufactures and sells networking and communications products worldwide. Some excerpts of its bylaws are shown below.

ARTICLE 2

SHAREHOLDERS' MEETINGS

Section 2.01 Annual Meetings. The annual meeting of the shareholders of the Corporation . . . shall be held each year on the second Thursday in November at 10:00 A.M. . . .

ARTICLE 3

BOARD OF DIRECTORS

Section 3.02 Number and Qualification of Directors. The number of authorized directors of this Corporation shall be not less than eight (8) nor more than fifteen (15), . . . to be (determined) by . . . the Board of Directors or shareholders.

ARTICLE 4

OFFICERS

Section 4.01 Number and Term. The officers of the Corporation shall include a President, a Secretary and a Chief Financial Officer, all of which shall be chosen by the Board of Directors. . . .

Section 4.06 President. The President shall be the general manager and chief executive officer of the Corporation, . . . shall preside at all meetings of shareholders, shall have general supervision of the affairs of the Corporation. . . .

To illustrate, assume that in the preceding example the no-par common stock is assigned a stated value of $25. The issuance of the stock on January 9 and June 27 is recorded as follows:

Jan.	9	Cash		400,000	
		Common Stock			250,000
		Paid-In Capital in Excess of Stated Value			150,000
		Issued 10,000 shares of no-par common at $40; stated value, $25.			
June	27	Cash		36,000	
		Common Stock			25,000
		Paid-In Capital in Excess of Stated Value			11,000
		Issued 1,000 shares of no-par common at $36; stated value, $25.			

Example Exercise 13-2 Entries for Issuing Stock

OBJ. 3

On March 6, Limerick Corporation issued for cash 15,000 shares of no-par common stock at $30. On April 13, Limerick issued at par 1,000 shares of 4%, $40 par preferred stock for cash. On May 19, Limerick issued for cash 15,000 shares of 4%, $40 par preferred stock at $42.

Journalize the entries to record the March 6, April 13, and May 19 transactions.

Follow My Example 13-2

Mar. 6	Cash	450,000	
	Common Stock		450,000
	(15,000 shares × $30).		
Apr. 13	Cash	40,000	
	Preferred Stock		40,000
	(1,000 shares × $40).		
May 19	Cash	630,000	
	Preferred Stock		600,000
	Paid-In Capital in Excess of Par		30,000
	(15,000 shares × $42).		

Practice Exercises: **PE 13-2A, PE 13-2B**

IFRS

International Connection

IFRS FOR SMES

In 2010, the International Accounting Standards Board (IASB) issued a set of accounting standards specifically designed for small- and medium-sized enterprises (SMEs) called International Financial Reporting Standards (IFRS) for SMEs. SMEs in the United States are private companies and such small corporations that they do not report to the Securities and Exchange Commission (SEC). IFRS for SMEs consist of only 230 pages, compared to 2,700 pages for full IFRS. These standards are designed to be cost effective for SMEs. Thus, IFRS for SMEs require fewer disclosures and contain no industry-specific standards or exceptions.

The American Institute of CPAs (AICPA) has accepted IFRS for SMEs as part of U.S. Generally Accepted Accounting Principles (GAAP) for private companies not reporting to the SEC. If users, such as bankers and investors, accept these financial statements, IFRS for SMEs may become popular in the United States.*

*Differences between U.S. GAAP and IFRS are further discussed and illustrated in Appendix D.

Accounting for Dividends

OBJ. 4 Describe and illustrate the accounting for cash dividends and stock dividends.

When a board of directors declares a cash dividend, it authorizes the distribution of cash to stockholders. When a board of directors declares a stock dividend, it authorizes the distribution of its stock. In both cases, declaring a dividend reduces the retained earnings of the corporation.[7]

Cash Dividends

A cash distribution of earnings by a corporation to its shareholders is a **cash dividend**. Although dividends may be paid in other assets, cash dividends are the most common.

Three conditions for a cash dividend are as follows:

1. Sufficient retained earnings
2. Sufficient cash
3. Formal action by the board of directors

There must be a sufficient (large enough) balance in Retained Earnings to declare a cash dividend. That is, the balance of Retained Earnings must be large enough so that the dividend does not create a debit balance in the retained earnings account. However, a large Retained Earnings balance does not mean that there is cash available to pay dividends. This is because the balances of Cash and Retained Earnings are often unrelated.

Even if there are sufficient retained earnings and cash, a corporation's board of directors is not required to pay dividends. Nevertheless, many corporations pay quarterly cash dividends to make their stock more attractive to investors. *Special* or *extra* dividends may also be paid when a corporation experiences higher than normal profits.

Three dates included in a dividend announcement are as follows:

1. Date of declaration
2. Date of record
3. Date of payment

The *date of declaration* is the date the board of directors formally authorizes the payment of the dividend. On this date, the corporation incurs the liability to pay the amount of the dividend.

The *date of record* is the date the corporation uses to determine which stockholders will receive the dividend. During the period of time between the date of declaration and the date of record, the stock price is quoted as selling *with-dividends*. This means that any investors purchasing the stock before the date of record will receive the dividend.

The *date of payment* is the date the corporation will pay the dividend to the stockholders who owned the stock on the date of record. During the period of time between the record date and the payment date, the stock price is quoted as selling *ex-dividends*. This means that since the date of record has passed, any new investors will not receive the dividend.

Microsoft Corporation declared a dividend of $0.13 per share on December 9, 2009, to common stockholders of record as of February 18, 2010, payable on March 11, 2010.

To illustrate, assume that on October 1 Hiber Corporation declares the cash dividends shown below with a date of record of November 10 and a date of payment of December 2.

	Dividend per Share	Total Dividends
Preferred stock, $100 par, 5,000 shares outstanding....................	$2.50	$12,500
Common stock, $10 par, 100,000 shares outstanding	$0.30	30,000
Total		$42,500

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[7] In rare cases, when a corporation is reducing its operations or going out of business, a dividend may be a distribution of paid-in capital. Such a dividend is called a *liquidating dividend*.

On October 1, the declaration date, Hiber Corporation records the following entry:

Declaration Date

Oct.	1	Cash Dividends		42,500	
		Cash Dividends Payable			42,500
		Declared cash dividends.			

Date of Record

On November 10, the date of record, no entry is necessary. This date merely determines which stockholders will receive the dividends.

On December 2, the date of payment, Hiber Corporation records the payment of the dividends as follows:

Date of Payment

Dec.	2	Cash Dividends Payable		42,500	
		Cash			42,500
		Paid cash dividends.			

At the end of the accounting period, the balance in Cash Dividends will be transferred to Retained Earnings as part of the closing process. This closing entry debits Retained Earnings and credits Cash Dividends for the balance of the cash dividends account. If the cash dividends have not been paid by the end of the period, Cash Dividends Payable will be reported on the balance sheet as a current liability.

Example Exercise 13-3 Entries for Cash Dividends

4

The important dates in connection with a cash dividend of $75,000 on a corporation's common stock are February 26, March 30, and April 2. Journalize the entries required on each date.

Follow My Example 13-3

Feb. 26	Cash Dividends.	75,000	
	Cash Dividends Payable		75,000
Mar. 30	No entry required.		
Apr. 2	Cash Dividends Payable	75,000	
	Cash		75,000

Practice Exercises: **PE 13-3A, PE 13-3B**

Integrity, Objectivity, and Ethics in Business

THE PROFESSOR WHO KNEW TOO MUCH

A major Midwestern university released a quarterly "American Customer Satisfaction Index" based on its research of customers of popular U.S. products and services. Before the release of the index to the public, the professor in charge of the research bought and sold stocks of some of the companies in the report. The professor was quoted as saying that he thought it was important to test his theories of customer satisfaction with "real" [his own] money.

Is this proper or ethical? Apparently, the dean of the Business School didn't think so. In a statement to the press, the dean stated: "I have instructed anyone affiliated with the (index) not to make personal use of information gathered in the course of producing the quarterly index, prior to the index's release to the general public, and they [the researchers] have agreed."

Sources: Jon E. Hilsenrath and Dan Morse, "Researcher Uses Index to Buy, Short Stocks," *The Wall Street Journal*, February 18, 2003; and Jon E. Hilsenrath, "Satisfaction Theory: Mixed Results," *The Wall Street Journal*, February 19, 2003.

Stock Dividends

A **stock dividend** is a distribution of shares of stock to stockholders. Stock dividends are normally declared only on common stock and issued to common stockholders.

A stock dividend affects only stockholders' equity. Specifically, the amount of the stock dividend is transferred from Retained Earnings to Paid-In Capital. The amount transferred is normally the fair value (market price) of the shares issued in the stock dividend.[8]

To illustrate, assume that the stockholders' equity accounts of Hendrix Corporation as of December 15 are as follows:

Common Stock, $20 par (2,000,000 shares issued)	$40,000,000
Paid-In Capital in Excess of Par—Common Stock	9,000,000
Retained Earnings	26,600,000

On December 15, Hendrix Corporation declares a stock dividend of 5% or 100,000 shares (2,000,000 shares × 5%) to be issued on January 10 to stockholders of record on December 31. The market price of the stock on December 15 (the date of declaration) is $31 per share.

The entry to record the stock dividend is as follows:

Dec.	15	Stock Dividends		3,100,000	
		Stock Dividends Distributable			2,000,000
		Paid-In Capital in Excess of Par—Common Stock			1,100,000
		Declared 5% (100,000 share) stock dividend on $20 par common stock with a market price of $31 per share.			

After the preceding entry is recorded, Stock Dividends will have a debit balance of $3,100,000. Like cash dividends, the stock dividends account is closed to Retained Earnings at the end of the accounting period. This closing entry debits Retained Earnings and credits Stock Dividends.

At the end of the period, the *stock dividends distributable* and *paid-in capital in excess of par—common stock* accounts are reported in the Paid-In Capital section of the balance sheet. Thus, the effect of the preceding stock dividend is to transfer $3,100,000 of retained earnings to paid-in capital.

On January 10, the stock dividend is distributed to stockholders by issuing 100,000 shares of common stock. The issuance of the stock is recorded by the following entry:

Jan.	10	Stock Dividends Distributable		2,000,000	
		Common Stock			2,000,000
		Issued stock as stock dividend.			

A stock dividend does not change the assets, liabilities, or total stockholders' equity of a corporation. Likewise, a stock dividend does not change an individual stockholder's proportionate interest (equity) in the corporation.

To illustrate, assume a stockholder owns 1,000 of a corporation's 10,000 shares outstanding. If the corporation declares a 6% stock dividend, the stockholder's proportionate interest will not change as shown below.

	***Before* Stock Dividend**	***After* Stock Dividend**
Total shares issued	10,000	10,600 [10,000 + (10,000 × 6%)]
Number of shares owned	1,000	1,060 [1,000 + (1,000 × 6%)]
Proportionate ownership	10% (1,000/10,000)	10% (1,060/10,600)

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[8] The use of fair market value is justified as long as the number of shares issued for the stock dividend is small (less than 25% of the shares outstanding).

Example Exercise 13-4 Entries for Stock Dividends

OBJ. 4

Vienna Highlights Corporation has 150,000 shares of $100 par common stock outstanding. On June 14, Vienna Highlights declared a 4% stock dividend to be issued August 15 to stockholders of record on July 1. The market price of the stock was $110 per share on June 14.

Journalize the entries required on June 14, July 1, and August 15.

Follow My Example 13-4

June 14	Stock Dividends (150,000 × 4% × $110)	660,000	
	Stock Dividends Distributable (6,000 × $100)		600,000
	Paid-In Capital in Excess of Par—Common Stock ($660,000 – $600,000)		60,000
July 1	No entry required.		
Aug. 15	Stock Dividends Distributable	600,000	
	Common Stock		600,000

Practice Exercises: **PE 13-4A, PE 13-4B**

OBJ. 5 Describe and illustrate the accounting for treasury stock transactions.

Treasury Stock Transactions

Treasury stock is stock that a corporation has issued and then reacquired. A corporation may reacquire (purchase) its own stock for a variety of reasons, including the following:

1. To provide shares for resale to employees
2. To reissue as bonuses to employees, or
3. To support the market price of the stock

The 2009 edition of *Accounting Trends & Techniques* indicated that over 70% of the companies surveyed reported treasury stock.

The *cost method* is normally used for recording the purchase and resale of treasury stock.[9] Using the cost method, *Treasury Stock* is debited for the cost (purchase price) of the stock. When the stock is resold, Treasury Stock is credited for its cost. Any difference between the cost and the selling price is debited or credited to *Paid-In Capital from Sale of Treasury Stock.*

To illustrate, assume that a corporation has the following paid-in capital on January 1:

Common stock, $25 par (20,000 shares authorized and issued)	$500,000
Excess of issue price over par	150,000
	$650,000

On February 13, the corporation purchases 1,000 shares of its common stock at $45 per share. The entry to record the purchase of the treasury stock is as follows:

Feb.	13	Treasury Stock		45,000	
		Cash			45,000
		Purchased 1,000 shares of treasury stock at $45.			

On April 29, the corporation sells 600 shares of the treasury stock for $60. The entry to record the sale is as follows:

Apr.	29	Cash		36,000	
		Treasury Stock			27,000
		Paid-In Capital from Sale of Treasury Stock			9,000
		Sold 600 shares of treasury stock at $60.			

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[9] Another method that is infrequently used, called the *par value method*, is discussed in advanced accounting texts.

A sale of treasury stock may result in a decrease in paid-in capital. To the extent that Paid-In Capital from Sale of Treasury Stock has a credit balance, it is debited for any such decrease. Any remaining decrease is then debited to the retained earnings account.

To illustrate, assume that on October 4, the corporation sells the remaining 400 shares of treasury stock for $40 per share. The entry to record the sale is as follows:

Oct.	4	Cash		16,000	
		Paid-In Capital from Sale of Treasury Stock		2,000	
		Treasury Stock			18,000
		Sold 400 shares of treasury stock at $40.			

The October 4 entry shown above decreases paid-in capital by $2,000. Since Paid-In Capital from Sale of Treasury Stock has a credit balance of $9,000, the entire $2,000 was debited to Paid-In Capital from Sale of Treasury Stock.

No dividends (cash or stock) are paid on the shares of treasury stock. To do so would result in the corporation earning dividend revenue from itself.

Example Exercise 13-5 Entries for Treasury Stock

OBJ. 5

On May 3, Buzz Off Corporation reacquired 3,200 shares of its common stock at $42 per share. On July 22, Buzz Off sold 2,000 of the reacquired shares at $47 per share. On August 30, Buzz Off sold the remaining shares at $40 per share.

Journalize the transactions of May 3, July 22, and August 30.

Follow My Example 13-5

May 3	Treasury Stock (3,200 × $42)	134,400	
	Cash		134,400
July 22	Cash (2,000 × $47)	94,000	
	Treasury Stock (2,000 × $42)		84,000
	Paid-In Capital from Sale of Treasury Stock [2,000 × ($47 – $42)]		10,000
Aug. 30	Cash (1,200 × $40)	48,000	
	Paid-In Capital from Sale of Treasury Stock [1,200 × ($42 – $40)]	2,400	
	Treasury Stock (1,200 × $42)		50,400

Practice Exercises: **PE 13-5A, PE 13-5B**

Reporting Stockholders' Equity

OBJ. 6 Describe and illustrate the reporting of stockholders' equity.

As with other sections of the balance sheet, alternative terms and formats may be used in reporting stockholders' equity. Also, changes in retained earnings and paid-in capital may be reported in separate statements or notes to the financial statements.

Stockholders' Equity on the Balance Sheet

Exhibit 4 shows two methods for reporting stockholders' equity for the December 31, 2012, balance sheet for Telex Inc.

Method 1. Each class of stock is reported, followed by its related paid-in capital accounts. Retained earnings is then reported followed by a deduction for treasury stock.

Method 2. The stock accounts are reported, followed by the paid-in capital reported as a single item, Additional paid-in capital. Retained earnings is then reported followed by a deduction for treasury stock.

EXHIBIT 4

Stockholders' Equity Section of a Balance Sheet

Telex Inc.
Balance Sheet
December 31, 2012

Method 1

Stockholders' Equity			
Paid-in capital:			
Preferred 10% stock, $50 par (2,000 shares authorized and issued)	$100,000		
Excess of issue price over par	10,000	$ 110,000	
Common stock, $20 par (50,000 shares authorized, 45,000 shares issued)	$900,000		
Excess of issue price over par	190,000	1,090,000	
From sale of treasury stock		2,000	
Total paid-in capital			$1,202,000
Retained earnings			350,000
Total			$1,552,000
Deduct treasury stock (600 shares at cost)			27,000
Total stockholders' equity			$1,525,000

Method 2

Stockholders' Equity		
Contributed capital:		
Preferred 10% stock, $50 par (2,000 shares authorized and issued)	$100,000	
Common stock, $20 par (50,000 shares authorized, 45,000 shares issued)	900,000	
Additional paid-in capital	202,000	
Total contributed capital		$1,202,000
Retained earnings		350,000
Total		$1,552,000
Deduct treasury stock (600 shares at cost)		27000
Total stockholders' equity		$1,525,000

Significant changes in stockholders' equity during a period may also be presented in a statement of stockholders' equity or in the notes to the financial statements. The statement of stockholders' equity is illustrated later in this section.

Relevant rights and privileges of the various classes of stock outstanding should also be reported.[10] Examples include dividend and liquidation preferences, conversion rights, and redemption rights. Such information may be disclosed on the face of the balance sheet or in the notes to the financial statements.

Example Exercise 13-6 Reporting Stockholders' Equity

OBJ. 6

Using the following accounts and balances, prepare the Stockholders' Equity section of the balance sheet. Forty thousand shares of common stock are authorized, and 5,000 shares have been reacquired.

Common Stock, $50 par	$1,500,000
Paid-In Capital in Excess of Par	160,000
Paid-In Capital from Sale of Treasury Stock	44,000
Retained Earnings	4,395,000
Treasury Stock	120,000

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[10] *FASB Accounting Standards Codification*, Section 505-10-50.

Follow My Example 13-6

Stockholders' Equity

Paid-in capital:		
Common stock, $50 par (40,000 shares authorized, 30,000 shares issued)	$1,500,000	
Excess of issue price over par	160,000	$1,660,000
From sale of treasury stock		44,000
Total paid-in capital		$1,704,000
Retained earnings		4,395,000
Total		$6,099,000
Deduct treasury stock (5,000 shares at cost)		120,000
Total stockholders' equity		$5,979,000

Practice Exercises: **PE 13-6A, PE 13-6B**

Reporting Retained Earnings

Changes in retained earnings may be reported using one of the following:

1. Separate retained earnings statement
2. Combined income and retained earnings statement
3. Statement of stockholders' equity

Changes in retained earnings may be reported in a separate retained earnings statement. When a separate **retained earnings statement** is prepared, the beginning balance of retained earnings is reported. The net income is then added (or net loss is subtracted) and any dividends are subtracted to arrive at the ending retained earnings for the period.

To illustrate, a retained earnings statement for Telex Inc. is shown in Exhibit 5.

EXHIBIT 5

Retained Earnings Statement

Telex Inc.
Retained Earnings Statement
For the Year Ended December 31, 2012

Retained earnings, January 1, 2012			$245,000
Net income		$180,000	
Less dividends:			
Preferred stock	$10,000		
Common stock	65,000	75,000	
Increase in retained earnings			105,000
Retained earnings, December 31, 2012			$350,000

Changes in retained earnings may also be reported in combination with the income statement. This format emphasizes net income as the connecting link between the income statement and ending retained earnings. Since this format is not often used, we do not illustrate it.

Changes in retained earnings may also be reported in a statement of stockholders' equity. An example of reporting changes in retained earnings in a statement of stockholders' equity for Telex Inc. is shown in Exhibit 6.

Example Exercise 13-7 Retained Earnings Statement

OBJ. 6

Dry Creek Cameras Inc. reported the following results for the year ending March 31, 2012:

Retained earnings, April 1, 2011	$3,338,500
Net income	461,500
Cash dividends declared	80,000
Stock dividends declared	120,000

Prepare a retained earnings statement for the fiscal year ended March 31, 2012.

Follow My Example 13-7

Dry Creek Cameras Inc.
Retained Earnings Statement
For the Year Ended March 31, 2012

Retained earnings, April 1, 2011		$3,338,500
Net income	$461,500	
Less dividends declared	200,000	
Increase in retained earnings		261,500
Retained earnings, March 31, 2012		$3,600,000

Practice Exercises: **PE 13-7A, PE 13-7B**

Restrictions The use of retained earnings for payment of dividends may be restricted by action of a corporation's board of directors. Such **restrictions,** sometimes called *appropriations,* remain part of the retained earnings.

Restrictions of retained earnings are classified as:

1. *Legal.* State laws may require a restriction of retained earnings.

   Example: States may restrict retained earnings by the amount of treasury stock purchased. In this way, legal capital cannot be used for dividends.

2. *Contractual.* A corporation may enter into contracts that require restrictions of retained earnings.

   Example: A bank loan may restrict retained earnings so that money for repaying the loan cannot be used for dividends.

3. *Discretionary.* A corporation's board of directors may restrict retained earnings voluntarily.

   Example: The board may restrict retained earnings and, thus, limit dividend distributions so that more money is available for expanding the business.

Restrictions of retained earnings must be disclosed in the financial statements. Such disclosures are usually included in the notes to the financial statements.

Prior Period Adjustments An error may arise from a mathematical mistake or from a mistake in applying accounting principles. Such errors may not be discovered within the same period in which they occur. In such cases, the effect of the error should not affect the current period's net income. Instead, the correction of the error, called a **prior period adjustment**, is reported in the retained earnings statement. Such corrections are reported as an adjustment to the beginning balance of retained earnings.[11]

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[11] Prior period adjustments are illustrated in advanced texts.

Statement of Stockholders' Equity

When the only change in stockholders' equity is due to net income or net loss and dividends, a retained earnings statement is sufficient. However, when a corporation also has changes in stock and paid-in capital accounts, a **statement of stockholders' equity** is normally prepared.

A statement of stockholders' equity is normally prepared in a columnar format. Each column is a major stockholders' equity classification. Changes in each classification are then described in the left-hand column. Exhibit 6 illustrates a statement of stockholders' equity for Telex Inc.

EXHIBIT 6 **Statement of Stockholders' Equity**

Telex Inc.
Statement of Stockholders' Equity
For the Year Ended December 31, 2012

	Preferred Stock	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Total
Balance, January 1, 2012	$100,000	$850,000	$177,000	$245,000	$(17,000)	$1,355,000
Net income				180,000		180,000
Dividends on preferred stock				(10,000)		(10,000)
Dividends on common stock				(65,000)		(65,000)
Issuance of additional common stock		50,000	25,000			75,000
Purchase of treasury stock					(10,000)	(10,000)
Balance, December 31, 2012	$100,000	$900,000	$202,000	$350,000	$(27,000)	$1,525,000

Reporting Stockholders' Equity for Mornin' Joe

Mornin' Joe reports stockholders' equity in its balance sheet. Mornin' Joe also includes a retained earnings statement and statement of stockholders' equity in its financial statements.

The Stockholders' Equity section of Mornin' Joe's balance sheet as of December 31, 2012, is shown below.

Mornin' Joe
Balance Sheet
December 31, 2012

Stockholders' Equity

Paid-in capital:		
Preferred 10% stock, $50 par (6,000 shares authorized and issued)	$ 300,000	
Excess of issue price over par	50,000	$ 350,000
Common stock, $20 par (50,000 shares authorized, 45,000 shares issued)	$ 900,000	
Excess of issue price over par	1,450,000	2,350,000
Total paid-in capital		$2,700,000
Retained earnings		1,200,300
Total		$3,900,300
Deduct treasury stock (1,000 shares at cost)		46,000
Total stockholders' equity		$3,854,300
Total liabilities and stockholders' equity		$6,169,700

Mornin' Joe's retained earnings statement for the year ended December 31, 2012, is as follows:

Mornin' Joe
Retained Earnings Statment
For the Year Ended December 31, 2012

Retained earnings, January 1, 2012			$ 852,700
Net income		$421,600	
Less dividends:			
Preferred stock	$30,000		
Common stock	44,000	74,000	
Increase in retained earnings			347,600
Retained earnings, December 31, 2012			$1,200,300

The statement of stockholders' equity for Mornin' Joe is shown below.

Mornin' Joe
Statement of Stockholders' Equity
For the Year Ended December 31, 2012

	Preferred Stock	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Total
Balance, January 1, 2012	$300,000	$800,000	$1,325,000	$ 852,700	$(36,000)	$3,241,700
Net income				421,600		421,600
Dividends on preferred stock				(30,000)		(30,000)
Dividends on common stock				(44,000)		(44,000)
Issuance of additional common stock		100,000	175,000			275,000
Purchase of treasury stock					(10,000)	(10,000)
Balance, December 31, 2012	$300,000	$900,000	$1,500,000	$1,200,300	$(46,000)	$3,854,300

OBJ. 7 Describe the effect of stock splits on corporate financial statements.

Stock Splits

A **stock split** is a process by which a corporation reduces the par or stated value of its common stock and issues a proportionate number of additional shares. A stock split applies to all common shares including the unissued, issued, and treasury shares.

A major objective of a stock split is to reduce the market price per share of the stock. This attracts more investors and broadens the types and numbers of stockholders.

To illustrate, assume that Rojek Corporation has 10,000 shares of $100 par common stock outstanding with a current market price of $150 per share. The board of directors declares the following stock split:

1. Each common shareholder will receive 5 shares for each share held. This is called a 5-for-1 stock split. As a result, 50,000 shares (10,000 shares × 5) will be outstanding.
2. The par of each share of common stock will be reduced to $20 ($100/5).

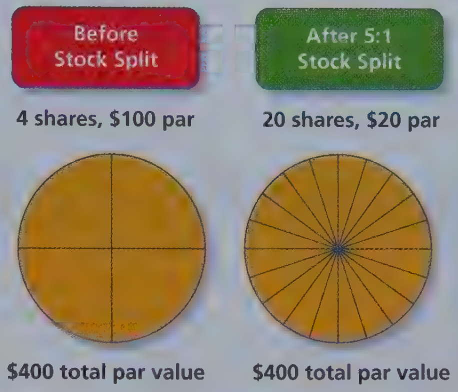
The par value of the common stock outstanding is $1,000,000 both before and after the stock split as shown below.

	Before Split	After Split
Number of shares	10,000	50,000
Par value per share	× $100	× $20
Total	$1,000,000	$1,000,000

In addition, each Rojek Corporation shareholder owns the same total par amount of stock before and after the stock split. For example, a stockholder who owned 4 shares of $100 par stock before the split (total par of $400) would own 20 shares of $20 par stock after the split (total par of $400). Only the number of shares and the par value per share have changed.

Since there are more shares outstanding after the stock split, the market price of the stock should decrease. For example, in the preceding example, there would be 5 times as many shares outstanding after the split. Thus, the market price of the stock would be expected to fall from $150 to about $30 ($150/5).

Stock splits do not require a journal entry since only the par (or stated) value and number of shares outstanding have changed. However, the details of stock splits are normally disclosed in the notes to the financial statements.



Note:
A stock split does not require a journal entry.

Business Connection

BUFFETT ON STOCK SPLITS

Warren E. Buffett, chairman and chief executive officer of Berkshire Hathaway Inc., opposes stock splits on the basis that they add no value to the company. Since its inception, Berkshire Hathaway has never declared a stock split on its primary (Class A) common stock. As a result, Berkshire Hathaway's Class A common stock sells well above $100,000 per share, which is the most expensive stock on the New York Stock Exchange. Such a high price doesn't bother Buffet since he believes that high stock prices attract more sophisticated and long-term investors and discourage stock speculators and short-term investors.

In contrast, Microsoft Corporation has split its stock nine times since it went public in 1986. As a result, one share of Microsoft purchased in 1986 is equivalent to 288 shares today, which would be worth approximately $7,500.

Financial Analysis and Interpretation: Earnings per Share

F·A·I

OBJ. 8 Describe and illustrate the use of earnings per share in evaluating a company's profitability.

Net income is often used by investors and creditors in evaluating a company's profitability. However, net income by itself is difficult to use in comparing companies of different sizes. Also, trends in net income may be difficult to evaluate if there have been significant changes in a company's stockholders' equity. Thus, the profitability of companies is often expressed as earnings per share.

Earnings per common share (EPS), sometimes called *basic earnings per share*, is the net income per share of common stock outstanding during a period.[12] Corporations whose stock is traded in a public market must report earnings per common share on their income statements.

Earnings per share is computed as follows:

$$\text{Earnings per Share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Number of Common Shares Outstanding}}$$

If a company has preferred stock outstanding, any preferred dividends are subtracted from net income. This is because the numerator represents only those earnings available to the common shareholders.

To illustrate, the following data (in thousands) were taken from Hasbro's financial statements:

---

[12] For complex capital structures, earnings per share assuming dilution may also be reported as described in Chapter 17.

	2009	2008
Net income	$374,930	$306,766
Average number of common shares outstanding	139,487 shares	140,877 shares
Earnings per share	$2.69 ($374,930 ÷ 139,487 shares)	$2.18 ($306,766 ÷ 140,877 shares)

Hasbro had no preferred stock outstanding during 2008; thus, no preferred dividends were subtracted in computing earnings per share. As shown above, Hasbro's earnings per share increased from $2.18 in 2008 to $2.69 in 2009. An increase in earnings per share is generally considered a favorable trend.

Earnings per share can be used to compare two companies with different net incomes. For example, the following data (in millions) were taken from a recent year's financial statements for **Bank of America Corporation** and **JP Morgan Chase & Co.**

	Bank of America	JP Morgan Chase
Net income	$4,008	$5,605
Preferred dividends	$1,452	$674
Average number of common shares outstanding	4,592 shares	3,501 shares

Bank of America:

$$\text{Earnings per Share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Number of Common Shares Outstanding}} = \frac{\$4{,}008 - \$1{,}452}{4{,}592 \text{ shares}} = \frac{\$2{,}556}{4{,}592 \text{ shares}} = \$0.56$$

JP Morgan Chase:

$$\text{Earnings per Share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Number of Common Shares Outstanding}} = \frac{\$5{,}605 - \$674}{3{,}501 \text{ shares}} = \frac{\$4{,}931}{3{,}501 \text{ shares}} = \$1.41$$

On the bases of net income and earnings per share, JP Morgan Chase is more profitable than Bank of America.

Example Exercise 13-8 Earnings per Share

OBJ. 8

Financial statement data for years ending December 31 for Finnegan Company are shown below.

	2012	2011
Net income	$350,000	$195,000
Preferred dividends	$20,000	$15,000
Average number of common shares outstanding	75,000 shares	50,000 shares

a. Determine earnings per share for 2012 and 2011.
b. Does the change in the earnings per share from 2011 to 2012 indicate a favorable or an unfavorable trend?

Follow My Example 13-8

a.

2012:

$$\text{Earnings per Share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Number of Common Shares Outstanding}} = \frac{\$350{,}000 - \$20{,}000}{75{,}000 \text{ shares}} = \frac{\$330{,}000}{75{,}000 \text{ shares}} = \$4.40$$

2011:

$$\text{Earnings per Share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Number of Common Shares Outstanding}} = \frac{\$195{,}000 - \$15{,}000}{50{,}000 \text{ shares}} = \frac{\$180{,}000}{50{,}000 \text{ shares}} = \$3.60$$

b. The increase in the earnings per share from $3.60 to $4.40 indicates a favorable trend in the company's profitability.

Practice Exercises: **PE 13-8A, PE 13-8B**

At a Glance 13

OBJ. 1 Describe the nature of the corporate form of organization.

Key Points Corporations have a separate legal existence, transferable units of stock, unlimited life, and limited stockholders' liability. The advantages and disadvantages of the corporate form are summarized in Exhibit 2. Costs incurred in organizing a corporation are debited to Organizational Expenses.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the characteristics of corporations.		
• List the advantages and disadvantages of the corporate form.		
• Prepare a journal entry for the costs of organizing a corporation.		

OBJ. 2 Describe the two main sources of stockholders' equity.

Key Points The two main sources of stockholders' equity are (1) capital contributed by the stockholders and others, called ***paid-in capital***, and (2) net income retained in the business, called ***retained earnings***. Stockholders' equity is reported in a corporation balance sheet according to these two sources.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe what is meant by paid-in capital.		
• Describe what is meant by net income retained in the business.		
• Prepare a simple Stockholders' Equity section of the balance sheet.		

OBJ. 3 Describe and illustrate the characteristics of stock, classes of stock, and entries for issuing stock.

Key Points The main source of paid-in capital is from issuing common and preferred stock. Stock issued at par is recorded by debiting Cash and crediting the class of stock issued for its par amount. Stock issued for more than par is recorded by debiting Cash, crediting the class of stock for its par, and crediting Paid-In Capital in Excess of Par for the difference. When no-par stock is issued, the entire proceeds are credited to the stock account. No-par stock may be assigned a stated value per share, and the excess of the proceeds over the stated value may be credited to Paid-In Capital in Excess of Stated Value.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the characteristics of common and preferred stock including rights to dividends.	EE13-1	13-1A, 13-1B
• Journalize the entry for common and preferred stock issued at par.	EE13-2	13-2A, 13-2B
• Journalize the entry for common and preferred stock issued at more than par.	EE13-2	13-2A, 13-2B
• Journalize the entry for issuing no-par stock.	EE13-2	13-2A, 13-2B

OBJ. 4 Describe and illustrate the accounting for cash dividends and stock dividends.

Key Points The entry to record a declaration of cash dividends debits Dividends and credits Dividends Payable. When a stock dividend is declared, Stock Dividends is debited for the fair value of the stock to be issued. Stock Dividends Distributable is credited for the par or stated value of the common stock to be issued. The difference between the fair value of the stock and its par or stated value is credited to Paid-In Capital in Excess of Par—Common Stock. When the stock is issued on the date of payment, Stock Dividends Distributable is debited and Common Stock is credited for the par or stated value of the stock issued.

Learning Outcomes	Example Exercises	Practice Exercises
• Journalize the entries for the declaration and payment of cash dividends.	EE13-3	PE13-3A, 13-3B
• Journalize the entries for the declaration and payment of stock dividends.	EE13-4	PE13-4A, 13-4B

OBJ. 5 Describe and illustrate the accounting for treasury stock transactions.

Key Points When a corporation buys its own stock, the cost method of accounting is normally used. Treasury Stock is debited for its cost, and Cash is credited. If the stock is resold, Treasury Stock is credited for its cost and any difference between the cost and the selling price is normally debited or credited to Paid-In Capital from Sale of Treasury Stock.

Learning Outcomes	Example Exercises	Practice Exercises
• Define treasury stock.		
• Describe the accounting for treasury stock.		
• Journalize entries for the purchase and sale of treasury stock.	EE13-5	PE13-5A, 13-5B

OBJ. 6 Describe and illustrate the reporting of stockholders' equity.

Key Points Two alternatives for reporting stockholders' equity are shown in Exhibit 4. Changes in retained earnings are reported in a retained earnings statement, as shown in Exhibit 5. Restrictions to retained earnings should be disclosed. Any prior period adjustments are reported in the retained earnings statement. Changes in stockholders' equity may be reported on a statement of stockholders' equity, as shown in Exhibit 6.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare the Stockholders' Equity section of the balance sheet.	EE13-6	PE13-6A, 13-6B
• Prepare a retained earnings statement.	EE13-7	PE13-7A, 13-7B
• Describe retained earnings restrictions and prior period adjustments.		
• Prepare a statement of stockholders' equity.		

OBJ. 7 Describe the effect of stock splits on corporate financial statements.

Key Points When a corporation reduces the par or stated value of its common stock and issues a proportionate number of additional shares, a stock split has occurred. There are no changes in the balances of any accounts, and no entry is required for a stock split.

Learning Outcomes	Example Exercises	Practice Exercises
• Define and give an example of a stock split.		
• Describe the accounting for and effects of a stock split on the financial statements.		

OBJ. 8 Describe and illustrate the use of earnings per share in evaluating a company's profitability.

Key Points The profitability of companies is often expressed as earnings per share. Earnings per share is computed by subtracting preferred dividends from net income and dividing by the average number of common shares outstanding.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the use of earnings per share in evaluating a company's profitability.		
• Compute and interpret earnings per share.	EE13-8	PE13-8A, 13-8B

Key Terms

cash dividend (591)
common stock (585)
cumulative preferred stock (586)
deficit (585)
discount (588)
dividends (584)
earnings per common share (EPS) (601)
in arrears (586)
outstanding stock (585)
paid-in capital (584)
par (585)
preferred stock (586)
premium (588)
prior period adjustments (598)
restrictions (598)
retained earnings (584)
retained earnings statement (597)
statement of stockholders' equity (599)
stock (582)
stock dividend (593)
stock split (600)
stockholders (582)
stockholders' equity (584)
treasury stock (594)

Illustrative Problem

Altenburg Inc. is a lighting fixture wholesaler located in Arizona. During its current fiscal year, ended December 31, 2012, Altenburg Inc. completed the following selected transactions:

Feb. 3. Purchased 2,500 shares of its own common stock at $26, recording the stock at cost. (Prior to the purchase, there were 40,000 shares of $20 par common stock outstanding.)

May 1. Declared a semiannual dividend of $1 on the 10,000 shares of preferred stock and a 30¢ dividend on the common stock to stockholders of record on May 31, payable on June 15.

June 15. Paid the cash dividends.

Sept. 23. Sold 1,000 shares of treasury stock at $28, receiving cash.

Nov. 1. Declared semiannual dividends of $1 on the preferred stock and 30¢ on the common stock. In addition, a 5% common stock dividend was declared on the common stock outstanding, to be capitalized at the fair market value of the common stock, which is estimated at $30.

Dec. 1. Paid the cash dividends and issued the certificates for the common stock dividend.

Instructions

Journalize the entries to record the transactions for Altenburg Inc.

Solution

2012					
Feb.	3	Treasury Stock		65,000	
		Cash			65,000
May	1	Cash Dividends		21,250	
		Cash Dividends Payable			21,250
		(10,000 × $1) + [(40,000 – 2,500) × $0.30].			
June	15	Cash Dividends Payable		21,250	
		Cash			21,250
Sept.	23	Cash		28,000	
		Treasury Stock			26,000
		Paid-In Capital from Sale of Treasury Stock			2,000
Nov.	1	Cash Dividends		21,550	
		Cash Dividends Payable			21,550
		(10,000 × $1) + [(40,000 – 1,500) × $0.30].			
	1	Stock Dividends		57,750*	
		Stock Dividends Distributable			38,500
		Paid-In Capital in Excess of Par—Common Stock			19,250
		*(40,000 – 1,500) × 5% × $30.			
Dec.	1	Cash Dividends Payable		21,550	
		Stock Dividends Distributable		38,500	
		Cash			21,550
		Common Stock			38,500

Discussion Questions

1. Of two corporations organized at approximately the same time and engaged in competing businesses, one issued $150 par common stock, and the other issued $1.00 par common stock. Do the par designations provide any indication as to which stock is preferable as an investment? Explain.

2. A stockbroker advises a client to "buy preferred stock. . . . With that type of stock, . . . [you] will never have to worry about losing the dividends." Is the broker right?

3. A corporation with both preferred stock and common stock outstanding has a substantial credit balance in its retained earnings account at the beginning of the current fiscal year. Although net income for the current year is sufficient to pay the preferred dividend of $90,000 each quarter and a common dividend of $275,000 each quarter, the board of directors declares dividends only on the preferred stock. Suggest possible reasons for passing the dividends on the common stock.

4. An owner of 1,000 shares of Simmons Company common stock receives a stock dividend of 6 shares.
   a. What is the effect of the stock dividend on the stockholder's proportionate interest (equity) in the corporation?
   b. How does the total equity of 1,006 shares compare with the total equity of 1,000 shares before the stock dividend?

5. a. Where should a declared but unpaid cash dividend be reported on the balance sheet?
   b. Where should a declared but unissued stock dividend be reported on the balance sheet?

6. A corporation reacquires 25,000 shares of its own $10 par common stock for $1,000,000, recording it at cost.
   a. What effect does this transaction have on revenue or expense of the period?
   b. What effect does it have on stockholders' equity?

7. The treasury stock in Discussion Question 6 is resold for $1,200,000.
   a. What is the effect on the corporation's revenue of the period?
   b. What is the effect on stockholders' equity?

8. What are the three classifications of restrictions of retained earnings, and how are such restrictions normally reported on the financial statements?

9. Indicate how prior period adjustments would be reported on the financial statements presented only for the current period.

10. What is the primary purpose of a stock split?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 3 **EE 13-1** *p. 587*

PE 13-1A Dividends per share

Hays-Smith Company has 18,000 shares of 4% cumulative preferred stock of $125 par and 50,000 shares of $40 par common stock. The following amounts were distributed as dividends:

Year 1	$ 72,000
Year 2	125,000
Year 3	160,000

Determine the dividends per share for preferred and common stock for each year.

OBJ. 3 **EE 13-1** *p. 587*

PE 13-1B Dividends per share

Lasers4U Company has 10,000 shares of 2% cumulative preferred stock of $50 par and 25,000 shares of $100 par common stock. The following amounts were distributed as dividends:

Year 1	$18,000
Year 2	7,500
Year 3	35,000

Determine the dividends per share for preferred and common stock for each year.

OBJ. 3 **EE 13-2** *p. 590*

PE 13-2A Entries for issuing stock

On February 23, Muir Corporation issued for cash 75,000 shares of no-par common stock (with a stated value of $80) at $125. On October 6, Muir issued 20,000 shares of 1%, $50 preferred stock at par for cash. On November 4, Muir issued for cash 12,000 shares of 1%, $50 par preferred stock at $59.

Journalize the entries to record the February 23, October 6, and November 4 transactions.

OBJ. 3 **EE 13-2** *p. 590*

PE 13-2B Entries for issuing stock

On August 7, Asian Artifacts Corporation issued for cash 300,000 shares of no-par common stock at $1.75. On September 1, Asian Artifacts issued 25,000 shares of 2%, $40 preferred stock at par for cash. On November 2, Asian Artifacts issued for cash 10,000 shares of 2%, $40 par preferred stock at $52.

Journalize the entries to record the August 7, September 1, and November 2 transactions.

OBJ. 4 **EE 13-3** *p. 592*

PE 13-3A Entries for cash dividends

The declaration, record, and payment dates in connection with a cash dividend of $115,000 on a corporation's common stock are October 15, November 14, and December 14. Journalize the entries required on each date.

OBJ. 4 **EE 13-3** *p. 592*

PE 13-3B Entries for cash dividends

The declaration, record, and payment dates in connection with a cash dividend of $275,000 on a corporation's common stock are March 3, April 2, and May 2. Journalize the entries required on each date.

OBJ. 4 **EE 13-4** *p. 594*

PE 13-4A Entries for stock dividends

Arroyo Corporation has 100,000 shares of $60 par common stock outstanding. On February 8, Arroyo Corporation declared a 6% stock dividend to be issued April 11 to stockholders of record on March 10. The market price of the stock was $94 per share on February 8.

Journalize the entries required on February 8, March 10, and April 11.

Learning Objectives *Example Exercises*

OBJ. 4 **EE 13-4** *p. 594*

PE 13-4B Entries for stock dividends

U-Store Corporation has 250,000 shares of $15 par common stock outstanding. On July 20, U-Store Corporation declared a 3% stock dividend to be issued September 18 to stockholders of record on August 19. The market price of the stock was $54 per share on July 20.

Journalize the entries required on July 20, August 19, and September 18.

OBJ. 5 **EE 13-5** *p. 595*

PE 13-5A Entries for treasury stock

On March 8, Golf Resorts Inc. reacquired 13,000 shares of its common stock at $42 per share. On May 16, Golf Resorts sold 9,500 of the reacquired shares at $50 per share. On August 30, Golf Resorts sold the remaining shares at $40 per share.

Journalize the transactions of March 8, May 16, and August 30.

OBJ. 5 **EE 13-5** *p. 595*

PE 13-5B Entries for treasury stock

On September 9, Palin Clothing Inc. reacquired 9,000 shares of its common stock at $24 per share. On October 7, Palin Clothing sold 4,800 of the reacquired shares at $29 per share. On December 20, Palin Clothing sold the remaining shares at $22 per share.

Journalize the transactions of September 9, October 7, and December 20.

OBJ. 6 **EE 13-6** *p. 596*

PE 13-6A Reporting stockholders' equity

Using the following accounts and balances, prepare the Stockholders' Equity section of the balance sheet. Fifty thousand shares of common stock are authorized, and 2,500 shares have been reacquired.

Common Stock, $120 par	$4,800,000
Paid-In Capital in Excess of Par	600,000
Paid-In Capital from Sale of Treasury Stock	59,000
Retained Earnings	7,138,500
Treasury Stock	287,500

OBJ. 6 **EE 13-6** *p. 596*

PE 13-6B Reporting stockholders' equity

Using the following accounts and balances, prepare the Stockholders' Equity section of the balance sheet. Two-hundred thousand shares of common stock are authorized, and 24,000 shares have been reacquired.

Common Stock, $15 par	$2,400,000
Paid-In Capital in Excess of Par	480,000
Paid-In Capital from Sale of Treasury Stock	100,000
Retained Earnings	5,275,000
Treasury Stock	336,000

OBJ. 6 **EE 13-7** *p. 598*

PE 13-7A Retained earnings statement

Emmy Leaders Inc. reported the following results for the year ending August 31, 2012:

Retained earnings, September 1, 2011	$740,000
Net income	145,000
Cash dividends declared	5,000
Stock dividends declared	30,000

Prepare a retained earnings statement for the fiscal year ended August 31, 2012.

OBJ. 6 **EE 13-7** *p. 598*

PE 13-7B Retained earnings statement

Auckland Cruises Inc. reported the following results for the year ending April 30, 2012:

Retained earnings, May 1, 2011	$3,180,000
Net income	515,000
Cash dividends declared	100,000
Stock dividends declared	125,000

Prepare a retained earnings statement for the fiscal year ended April 30, 2012.

Learning Objectives *Example Exercises*

OBJ. 8 **EE 13-8** *p. 602*

FAI

PE 13-8A Earnings per share

Financial statement data for years ending December 31 for Jardine Company are shown below.

	2012	2011
Net income	$117,000	$104,000
Preferred dividends	$18,000	$18,000
Average number of common shares outstanding	50,000 shares	40,000 shares

a. Determine the earnings per share for 2012 and 2011.

b. Does the change in the earnings per share from 2011 to 2012 indicate a favorable or an unfavorable trend?

OBJ. 8 **EE 13-8** *p. 602*

FAI

PE 13-8B Earnings per share

Financial statement data for years ending December 31 for Duffner Company are shown below.

	2012	2011
Net income	$971,000	$692,000
Preferred dividends	$35,000	$35,000
Average number of common shares outstanding	120,000 shares	90,000 shares

a. Determine the earnings per share for 2012 and 2011.

b. Does the change in the earnings per share from 2011 to 2012 indicate a favorable or an unfavorable trend?

Exercises

OBJ. 3

✔ Preferred stock, 1st year: $1.25

EX 13-1 Dividends per share

Baxter Inc., a developer of radiology equipment, has stock outstanding as follows: 18,000 shares of cumulative 2%, preferred stock of $75 par, and 40,000 shares of $10 par common. During its first four years of operations, the following amounts were distributed as dividends: first year, $22,500; second year, $28,800; third year, $40,100; fourth year, $77,000. Calculate the dividends per share on each class of stock for each of the four years.

OBJ. 3

✔ Preferred stock, 1st year: $0.30

EX 13-2 Dividends per share

Wings Inc., a software development firm, has stock outstanding as follows: 25,000 shares of cumulative 1%, preferred stock of $40 par, and 50,000 shares of $120 par common. During its first four years of operations, the following amounts were distributed as dividends: first year, $7,500; second year, $10,500; third year, $25,000; fourth year, $60,000. Calculate the dividends per share on each class of stock for each of the four years.

OBJ. 3

EX 13-3 Entries for issuing par stock

On January 14, Mountain Rocks Inc., a marble contractor, issued for cash 24,000 shares of $25 par common stock at $32, and on March 17, it issued for cash 60,000 shares of $10 par preferred stock at $11.

a. Journalize the entries for January 14 and March 17.

b. What is the total amount invested (total paid-in capital) by all stockholders as of March 17?

OBJ. 3

EX 13-4 Entries for issuing no-par stock

On July 12, Lasting Carpet Inc., a carpet wholesaler, issued for cash 300,000 shares of no-par common stock (with a stated value of $4) at $9, and on November 18, it issued for cash 40,000 shares of $90 par preferred stock at $100.

a. Journalize the entries for July 12 and November 18, assuming that the common stock is to be credited with the stated value.

b. What is the total amount invested (total paid-in capital) by all stockholders as of November 18?

OBJ. 3

EX 13-5 Issuing stock for assets other than cash

On April 15, Hass Corporation, a wholesaler of hydraulic lifts, acquired land in exchange for 17,500 shares of $20 par common stock with a current market price of $30. Journalize the entry to record the transaction.

OBJ. 3

EX 13-6 Selected stock transactions

Fantastic Sounds Corp., an electric guitar retailer, was organized by Pam Mikhail, Jane Lo, and Dale Nadal. The charter authorized 400,000 shares of common stock with a par of $50. The following transactions affecting stockholders' equity were completed during the first year of operations:

a. Issued 20,000 shares of stock at par to Pam Mikhail for cash.

b. Issued 1,000 shares of stock at par to Dale Nadal for promotional services provided in connection with the organization of the corporation, and issued 15,000 shares of stock at par to Dale Nadal for cash.

c. Purchased land and a building from Jane Lo. The building is mortgaged for $300,000 for 20 years at 5%, and there is accrued interest of $2,500 on the mortgage note at the time of the purchase. It is agreed that the land is to be priced at $200,000 and the building at $500,000, and that Jane Lo's equity will be exchanged for stock at par. The corporation agreed to assume responsibility for paying the mortgage note and the accrued interest.

Journalize the entries to record the transactions.

OBJ. 3

EX 13-7 Issuing stock

Wildwood Nursery, with an authorization of 50,000 shares of preferred stock and 400,000 shares of common stock, completed several transactions involving its stock on June 1, the first day of operations. The trial balance at the close of the day follows:

Cash	1,584,000	
Land	350,000	
Buildings	910,000	
Preferred 3% Stock, $120 par		1,200,000
Paid-In Capital in Excess of Par—Preferred Stock		60,000
Common Stock, $50 par		1,500,000
Paid-In Capital in Excess of Par—Common Stock		84,000
	2,844,000	2,844,000

All shares within each class of stock were sold at the same price. The preferred stock was issued in exchange for the land and buildings.

Journalize the two entries to record the transactions summarized in the trial balance.

OBJ. 3

EX 13-8 Issuing stock

Baird Products Inc., a wholesaler of office products, was organized on January 30 of the current year, with an authorization of 80,000 shares of 2% preferred stock, $75 par and 800,000 shares of $20 par common stock. The following selected transactions were completed during the first year of operations:

Jan. 30. Issued 300,000 shares of common stock at par for cash.

31. Issued 750 shares of common stock at par to an attorney in payment of legal fees for organizing the corporation.

Feb. 21. Issued 32,000 shares of common stock in exchange for land, buildings, and equipment with fair market prices of $150,000, $460,000, and $90,000, respectively.

Mar. 2. Issued 15,000 shares of preferred stock at $77.50 for cash.

Journalize the transactions.

OBJ. 4

EX 13-9 Entries for cash dividends

The declaration, record, and payment dates in connection with a cash dividend of $365,850 on a corporation's common stock are April 1, May 1, and June 3. Journalize the entries required on each date.

OBJ. 4

✓ b. (1) $18,060,000
(3) $93,556,000

EX 13-10 Entries for stock dividends

Organic Life Co. is an HMO for businesses in the Portland area. The following account balances appear on the balance sheet of Organic Life Co.: Common stock (250,000 shares authorized), $125 par, $17,500,000; Paid-in capital in excess of par—common stock, $560,000; and Retained earnings, $75,496,000. The board of directors declared a 3% stock dividend when the market price of the stock was $132 a share. Organic Life Co. reported no income or loss for the current year.

a. Journalize the entries to record (1) the declaration of the dividend, capitalizing an amount equal to market value, and (2) the issuance of the stock certificates.

b. Determine the following amounts before the stock dividend was declared: (1) total paid-in capital, (2) total retained earnings, and (3) total stockholders' equity.

c. Determine the following amounts after the stock dividend was declared and closing entries were recorded at the end of the year: (1) total paid-in capital, (2) total retained earnings, and (3) total stockholders' equity.

OBJ. 5

✓ b. $102,000 credit

EX 13-11 Treasury stock transactions

Deer Creek Inc. bottles and distributes spring water. On April 27 of the current year, Deer Creek reacquired 15,000 shares of its common stock at $60 per share. On July 13, Deer Creek sold 9,000 of the reacquired shares at $72 per share. The remaining 6,000 shares were sold at $59 per share on October 8.

a. Journalize the transactions of April 27, July 13, and October 8.

b. What is the balance in Paid-In Capital from Sale of Treasury Stock on December 31 of the current year?

c. For what reasons might Deer Creek have purchased the treasury stock?

OBJ. 5, 6

✓ b. $94,000 credit

EX 13-12 Treasury stock transactions

Golden Gardens Inc. develops and produces spraying equipment for lawn maintenance and industrial uses. On June 19 of the current year, Golden Gardens Inc. reacquired 24,000 shares of its common stock at $64 per share. On August 30, 19,000 of the reacquired shares were sold at $68 per share, and on September 6, 3,000 of the reacquired shares were sold at $70.

a. Journalize the transactions of June 19, August 30, and September 6.

b. What is the balance in Paid-In Capital from Sale of Treasury Stock on December 31 of the current year?

c. What is the balance in Treasury Stock on December 31 of the current year?

d. How will the balance in Treasury Stock be reported on the balance sheet?

OBJ. 5, 6

✓ b. $24,000 credit

EX 13-13 Treasury stock transactions

Conyers Water Inc. bottles and distributes spring water. On July 5 of the current year, Conyers Water Inc. reacquired 12,500 shares of its common stock at $80 per share. On November 3, Conyers Water Inc. sold 7,000 of the reacquired shares at $85 per share. The remaining 5,500 shares were sold at $78 per share on December 10.

a. Journalize the transactions of July 5, November 3, and December 10.

b. What is the balance in Paid-In Capital from Sale of Treasury Stock on December 31 of the current year?

c. Where will the balance in Paid-In Capital from Sale of Treasury Stock be reported on the balance sheet?

d. For what reasons might Conyers Water Inc. have purchased the treasury stock?

OBJ. 6

✔ Total paid-in capital, $7,720,000

EX 13-14 Reporting paid-in capital

The following accounts and their balances were selected from the unadjusted trial balance of CW Group Inc., a freight forwarder, at March 31, the end of the current fiscal year:

Preferred 1% Stock, $75 par	$ 4,500,000
Paid-In Capital in Excess of Par—Preferred Stock	180,000
Common Stock, no par, $8 stated value	2,400,000
Paid-In Capital in Excess of Stated Value—Common Stock	450,000
Paid-In Capital from Sale of Treasury Stock	190,000
Retained Earnings	11,570,000

Prepare the Paid-In Capital portion of the Stockholders' Equity section of the balance sheet. There are 500,000 shares of common stock authorized and 100,000 shares of preferred stock authorized.

OBJ. 6

✔ Total stockholders' equity, $11,677,000

EX 13-15 Stockholders' equity section of balance sheet

The following accounts and their balances appear in the ledger of Cline Properties Inc. on April 30 of the current year:

Common Stock, $90 par	$2,700,000
Paid-In Capital in Excess of Par	120,000
Paid-In Capital from Sale of Treasury Stock	36,000
Retained Earnings	9,173,000
Treasury Stock	352,000

Prepare the Stockholders' Equity section of the balance sheet as of April 30. Fifty thousand shares of common stock are authorized, and 4,000 shares have been reacquired.

OBJ. 6

✔ Total stockholders' equity, $31,308,000

EX 13-16 Stockholders' equity section of balance sheet

Furious and Fast Car Inc. retails racing products for BMWs, Porsches, and Ferraris. The following accounts and their balances appear in the ledger of Furious and Fast Car Inc. on November 30, the end of the current year:

Common Stock, $8 par	$ 3,000,000
Paid-In Capital in Excess of Par—Common Stock	525,000
Paid-In Capital in Excess of Par—Preferred Stock	280,000
Paid-In Capital from Sale of Treasury Stock—Common	175,000
Preferred 2% Stock, $125 par	5,000,000
Retained Earnings	23,120,000
Treasury Stock—Common	792,000

Sixty thousand shares of preferred and 500,000 shares of common stock are authorized. There are 88,000 shares of common stock held as treasury stock.

Prepare the Stockholders' Equity section of the balance sheet as of November 30, the end of the current year.

OBJ. 6

✔ Retained earnings, October 31, $966,750

EX 13-17 Retained earnings statement

Sandusky Corporation, a manufacturer of industrial pumps, reports the following results for the year ending October 31, 2012:

Retained earnings, November 1, 2011	$796,750
Net income	215,000
Cash dividends declared	15,000
Stock dividends declared	30,000

Prepare a retained earnings statement for the fiscal year ended October 31, 2012.

OBJ. 6

✔ Corrected total stockholders' equity, $53,527,000

EX 13-18 Stockholders' equity section of balance sheet

List the errors in the following Stockholders' Equity section of the balance sheet prepared as of the end of the current year.

Stockholders' Equity

Paid-in capital:		
Preferred 1% stock, $200 par (25,000 shares authorized and issued)	$5,000,000	
Excess of issue price over par	75,000	$ 5,075,000
Retained earnings		41,750,000
Treasury stock (45,000 shares at cost)		648,000
Dividends payable		175,000
Total paid-in capital		$ 47,648,000
Common stock, $14 par (800,000 shares authorized, 500,000 shares issued)		7,600,000
Organizing costs		250,000
Total stockholders' equity		$55,498,000

OBJ. 6

✔ Total stockholders' equity, Dec. 31, $10,773,000

EX 13-19 Statement of stockholders' equity

The stockholders' equity T accounts of Life's Greeting Cards Inc. for the current fiscal year ended December 31, 2012, are as follows. Prepare a statement of stockholders' equity for the fiscal year ended December 31, 2012.

COMMON STOCK

			Jan. 1	Balance	3,000,000
			Mar. 7	Issued	
				27,000 shares	1,350,000
			Dec. 31	Balance	4,350,000

PAID-IN CAPITAL IN EXCESS OF PAR

			Jan. 1	Balance	480,000
			Mar. 7	Issued	
				27,000 shares	324,000
			Dec. 31	Balance	804,000

TREASURY STOCK

Aug. 7	Purchased				
	4,500 shares	216,000			

RETAINED EARNINGS

Mar. 31	Dividend	37,500	Jan. 1	Balance	5,220,000
June 30	Dividend	37,500	Dec. 31	Closing	
Sept. 30	Dividend	37,500		(net income)	765,000
Dec. 31	Dividend	37,500	Dec. 31	Balance	5,835,000

OBJ. 7

EX 13-20 Effect of stock split

Gino's Restaurant Corporation wholesales ovens and ranges to restaurants throughout the Midwest. Gino's Restaurant Corporation, which had 100,000 shares of common stock outstanding, declared a 5-for-1 stock split (4 additional shares for each share issued).

a. What will be the number of shares outstanding after the split?

b. If the common stock had a market price of $200 per share before the stock split, what would be an approximate market price per share after the split?

OBJ. 4, 7

EX 13-21 Effect of cash dividend and stock split

Indicate whether the following actions would (+) increase, (–) decrease, or (0) not affect Indigo Inc.'s total assets, liabilities, and stockholders' equity:

	Assets	Liabilities	Stockholders' Equity
(1) Authorizing and issuing stock certificates in a stock split			
(2) Declaring a stock dividend			
(3) Issuing stock certificates for the stock dividend declared in (2)			
(4) Declaring a cash dividend			
(5) Paying the cash dividend declared in (4)			

OBJ. 4, 7

EX 13-22 Selected dividend transactions, stock split

Selected transactions completed by Gene's Boating Corporation during the current fiscal year are as follows:

Feb. 10.	Split the common stock 3 for 1 and reduced the par from $60 to $20 per share. After the split, there were 300,000 common shares outstanding.
May 1.	Declared semiannual dividends of $2.00 on 40,000 shares of preferred stock and $0.12 on the common stock payable on June 15.
June 15.	Paid the cash dividends.
Nov. 1.	Declared semiannual dividends of $2.00 on the preferred stock and $0.08 on the common stock (before the stock dividend). In addition, a 2% common stock dividend was declared on the common stock outstanding. The fair market value of the common stock is estimated at $28.
Dec. 15.	Paid the cash dividends and issued the certificates for the common stock dividend.

Journalize the transactions.

OBJ. 8

EX 13-23 EPS

Malen Arts, Inc., had earnings of $133,750 for 2012. The company had 25,000 shares of common stock outstanding during the year. In addition, the company issued 10,000 shares of $100 par value preferred stock on January 3, 2012. The preferred stock has a dividend of $4 per share. There were no transactions in either common or preferred stock during 2012.

Determine the basic earnings per share for Malen Arts.

OBJ. 8

EX 13-24 EPS

Procter & Gamble (P&G) is one of the largest consumer products companies in the world, famous for such brands as Crest® and Tide®. Financial information for the company for three recent years is as follows:

	Fiscal Years Ended (in millions)		
	2009	2008	2007
Net income	$11,293	$11,798	$10,063
Preferred dividends	$192	$176	$161
Average number of common shares outstanding	2,952	3,081	3,159

a. Determine the earnings per share for fiscal years 2009, 2008, and 2007. Round to the nearest cent.

b. Evaluate the growth in earnings per share for the three years in comparison to the growth in net income for the three years.

OBJ. 8

EX 13-25 EPS

OfficeMax and Staples are two companies competing in the retail office supply business. OfficeMax had a net income of $667,000 for a recent year, while Staples had a net income of $738,671,000. OfficeMax had preferred stock of $36,479,000 with preferred dividends of $2,818,000. Staples had no preferred stock. The outstanding common shares for each company were as follows:

	Average Number of Common Shares Outstanding
OfficeMax	77,483,000
Staples	721,838,000

a. Determine the earnings per share for each company. Round to the nearest cent.

b. Evaluate the relative profitability of the two companies.

Problems Series A

OBJ. 3

✔ 1. Common dividends in 2009: $9,000

PR 13-1A Dividends on preferred and common stock

Love Theatre Inc. owns and operates movie theaters throughout New Mexico and Utah. Love Theatre has declared the following annual dividends over a six-year period: 2007, $16,000; 2008, $48,000; 2009, $65,000; 2010, $90,000; 2011, $115,000; and 2012, $140,000. During the entire period ending December 31 of each year, the outstanding stock of the company was composed of 25,000 shares of cumulative, 2% preferred stock, $80 par, and 100,000 shares of common stock, $4 par.

Instructions

1. Calculate the total dividends and the per-share dividends declared on each class of stock for each of the six years. There were no dividends in arrears on January 1, 2007. Summarize the data in tabular form, using the following column headings:

		Preferred Dividends		Common Dividends	
Year	Total Dividends	Total	Per Share	Total	Per Share
2007	$ 16,000				
2008	48,000				
2009	65,000				
2010	90,000				
2011	115,000				
2012	140,000				

2. Calculate the average annual dividend per share for each class of stock for the six-year period.
3. Assuming a market price per share of $128 for the preferred stock and $7.80 for the common stock, calculate the average annual percentage return on initial shareholders' investment, based on the average annual dividend per share (a) for preferred stock and (b) for common stock.

OBJ. 3

PR 13-2A Stock transactions for corporate expansion

On March 1 of the current year, the following accounts and their balances appear in the ledger of Mocha Corp., a coffee processor:

Preferred 2% Stock, $25 par (300,000 shares authorized, 120,000 shares issued)	$ 3,000,000
Paid-In Capital in Excess of Par—Preferred Stock	480,000
Common Stock, $100 par (800,000 shares authorized, 250,000 shares issued)	25,000,000
Paid-In Capital in Excess of Par—Common Stock	2,000,000
Retained Earnings	50,000,000

At the annual stockholders' meeting on April 18, the board of directors presented a plan for modernizing and expanding plant operations at a cost of approximately $14,000,000. The plan provided (a) that a building, valued at $3,500,000, and the land on which it is located, valued at $5,000,000, be acquired in accordance with preliminary negotiations by the issuance of 80,000 shares of common stock, (b) that 85,000 shares of the unissued preferred stock be issued through an underwriter, and (c) that the corporation borrow $3,000,000. The plan was approved by the stockholders and accomplished by the following transactions:

June 5. Issued 80,000 shares of common stock in exchange for land and a building, according to the plan.
16. Issued 85,000 shares of preferred stock, receiving $30 per share in cash.
29. Borrowed $3,000,000 from First City Bank, giving a 6% mortgage note.

No other transactions occurred during June.

Instructions

Journalize the entries to record the foregoing transactions.

OBJ. 3, 4, 5

✔ f. Cash dividends, $57,200

PR 13-3A Selected stock transactions

The following selected accounts appear in the ledger of Patton Environmental Inc. on July 1, 2012, the beginning of the current fiscal year:

Preferred 2% Stock, $75 par (40,000 shares authorized, 20,000 shares issued)	$ 1,500,000
Paid-In Capital in Excess of Par—Preferred Stock	240,000
Common Stock, $15 par (500,000 shares authorized, 260,000 shares issued)	3,900,000
Paid-In Capital in Excess of Par—Common Stock	400,000
Retained Earnings	12,750,000

During the year, the corporation completed a number of transactions affecting the stockholders' equity. They are summarized as follows:

a. Issued 50,000 shares of common stock at $20, receiving cash.
b. Issued 10,000 shares of preferred 2% stock at $92.
c. Purchased 30,000 shares of treasury common for $480,000.
d. Sold 15,000 shares of treasury common for $322,500.
e. Sold 10,000 shares of treasury common for $155,000.
f. Declared cash dividends of $1.50 per share on preferred stock and $0.04 per share on common stock.
g. Paid the cash dividends.

Instructions

Journalize the entries to record the transactions. Identify each entry by letter.

OBJ. 3, 4, 5, 6

✔ 4. Total stockholders' equity, $15,599,960

PR 13-4A Entries for selected corporate transactions

Tolbert Enterprises Inc. manufactures bathroom fixtures. The stockholders' equity accounts of Tolbert Enterprises Inc., with balances on January 1, 2012, are as follows:

Common Stock, $10 stated value (600,000 shares authorized, 400,000 shares issued)	$4,000,000
Paid-In Capital in Excess of Stated Value	750,000
Retained Earnings	9,150,000
Treasury Stock (40,000 shares, at cost)	600,000

The following selected transactions occurred during the year:

Jan. 4. Paid cash dividends of $0.13 per share on the common stock. The dividend had been properly recorded when declared on December 1 of the preceding fiscal year for $46,800.
Apr. 3. Issued 75,000 shares of common stock for $1,200,000.
June 6. Sold all of the treasury stock for $725,000.
July 1. Declared a 4% stock dividend on common stock, to be capitalized at the market price of the stock, which is $18 per share.
Aug. 15. Issued the certificates for the dividend declared on July 1.
Nov. 10. Purchased 25,000 shares of treasury stock for $500,000.
Dec. 27. Declared a $0.16-per-share dividend on common stock.
31. Closed the credit balance of the income summary account, $950,000.
31. Closed the two dividends accounts to Retained Earnings.

Instructions

1. Enter the January 1 balances in T accounts for the stockholders' equity accounts listed. Also prepare T accounts for the following: Paid-In Capital from Sale of Treasury Stock; Stock Dividends Distributable; Stock Dividends; Cash Dividends.
2. Journalize the entries to record the transactions, and post to the eight selected accounts.

3. Prepare a retained earnings statement for the year ended December 31, 2012.
4. Prepare the Stockholders' Equity section of the December 31, 2012, balance sheet.

OBJ. 3, 4, 5, 7

✓ Nov. 15, cash dividends, $159,400

PR 13-5A Entries for selected corporate transactions

Selected transactions completed by Big Water Boating Corporation during the current fiscal year are as follows:

Jan. 3. Split the common stock 3 for 1 and reduced the par from $90 to $30 per share. After the split, there were 750,000 common shares outstanding.

Apr. 7. Purchased 50,000 shares of the corporation's own common stock at $33, recording the stock at cost.

May 1. Declared semiannual dividends of $1.40 on 35,000 shares of preferred stock and $0.09 on the common stock to stockholders of record on May 15, payable on June 1.

June 1. Paid the cash dividends.

July 29. Sold 36,000 shares of treasury stock at $40, receiving cash.

Nov. 15. Declared semiannual dividends of $1.40 on the preferred stock and $0.15 on the common stock (before the stock dividend). In addition, a 2% common stock dividend was declared on the common stock outstanding. The fair market value of the common stock is estimated at $41.

Dec. 31. Paid the cash dividends and issued the certificates for the common stock dividend.

Instructions

Journalize the transactions.

Problems Series B

OBJ. 3

✓ 1. Common dividends in 2009: $2,000

PR 13-1B Dividends on preferred and common stock

Boise Bike Corp. manufactures mountain bikes and distributes them through retail outlets in Montana, Idaho, Oregon, and Washington. Boise Bike Corp. has declared the following annual dividends over a six-year period ending December 31 of each year: 2007, $8,000; 2008, $24,000; 2009, $60,000; 2010, $75,000; 2011, $80,000; and 2012, $98,000. During the entire period, the outstanding stock of the company was composed of 20,000 shares of 2% cumulative preferred stock, $75 par, and 50,000 shares of common stock, $5 par.

Instructions

1. Determine the total dividends and the per-share dividends declared on each class of stock for each of the six years. There were no dividends in arrears on January 1, 2007. Summarize the data in tabular form, using the following column headings:

		Preferred Dividends		Common Dividends	
Year	Total Dividends	Total	Per Share	Total	Per Share
2007	$ 8,000				
2008	24,000				
2009	60,000				
2010	75,000				
2011	80,000				
2012	98,000				

2. Determine the average annual dividend per share for each class of stock for the six-year period.
3. Assuming a market price of $125 for the preferred stock and $13.75 for the common stock, calculate the average annual percentage return on initial shareholders' investment, based on the average annual dividend per share (a) for preferred stock and (b) for common stock.

OBJ. 3

PR 13-2B Stock transaction for corporate expansion

Picasso Optics produces medical lasers for use in hospitals. The accounts and their balances appear in the ledger of Picasso Optics on November 30 of the current year as follows:

Preferred 2% Stock, $80 par (150,000 shares authorized, 75,000 shares issued)	$ 6,000,000
Paid-In Capital in Excess of Par—Preferred Stock	225,000
Common Stock, $100 par (500,000 shares authorized, 150,000 shares issued)	15,000,000
Paid-In Capital in Excess of Par—Common Stock	1,800,000
Retained Earnings	50,250,000

At the annual stockholders' meeting on December 10, the board of directors presented a plan for modernizing and expanding plant operations at a cost of approximately $15,500,000. The plan provided (a) that the corporation borrow $6,000,000, (b) that 45,000 shares of the unissued preferred stock be issued through an underwriter, and (c) that a building, valued at $5,000,000, and the land on which it is located, valued at $487,500, be acquired in accordance with preliminary negotiations by the issuance of 52,500 shares of common stock. The plan was approved by the stockholders and accomplished by the following transactions:

Jan. 12. Borrowed $6,000,000 from Livingston National Bank, giving a 5% mortgage note.

18. Issued 45,000 shares of preferred stock, receiving $85 per share in cash.

25. Issued 52,500 shares of common stock in exchange for land and a building, according to the plan.

No other transactions occurred during January.

Instructions

Journalize the entries to record the foregoing transactions.

OBJ. 3, 4, 5

✔ f. Cash dividends, $135,750

PR 13-3B Selected stock transactions

Daley Welding Corporation sells and services pipe welding equipment in Illinois. The following selected accounts appear in the ledger of Daley Welding Corporation on May 1, 2012, the beginning of the current fiscal year:

Preferred 2% Stock, $40 par (50,000 shares authorized, 40,000 shares issued)	$ 1,600,000
Paid-In Capital in Excess of Par—Preferred Stock	240,000
Common Stock, $8 par (1,000,000 shares authorized, 750,000 shares issued)	6,000,000
Paid-In Capital in Excess of Par—Common Stock	2,500,000
Retained Earnings	43,175,000

During the year, the corporation completed a number of transactions affecting the stockholders' equity. They are summarized as follows:

a. Purchased 100,000 shares of treasury common for $1,500,000.

b. Sold 60,000 shares of treasury common for $1,080,000.

c. Issued 8,000 shares of preferred 2% stock at $50.

d. Issued 150,000 shares of common stock at $21, receiving cash.

e. Sold 25,000 shares of treasury common for $362,500.

f. Declared cash dividends of $0.80 per share on preferred stock and $0.11 per share on common stock.

g. Paid the cash dividends.

Instructions

Journalize the entries to record the transactions. Identify each entry by letter.

OBJ. 3, 4, 5, 6

✔ 4. Total stockholders' equity, $5,190,460

PR 13-4B Entries for selected corporate transactions

Ruffalo Enterprises Inc. produces aeronautical navigation equipment. The stockholders' equity accounts of Ruffalo Enterprises Inc., with balances on January 1, 2012, are as follows:

Common Stock, $8 stated value (250,000 shares authorized, 175,000 shares issued)	$1,400,000
Paid-In Capital in Excess of Stated Value	700,000
Retained Earnings	1,840,000
Treasury Stock (40,000 shares, at cost)	400,000

The following selected transactions occurred during the year:

Jan. 9. Paid cash dividends of $0.10 per share on the common stock. The dividend had been properly recorded when declared on November 30 of the preceding fiscal year for $13,500.

Mar. 15. Sold all of the treasury stock for $540,000.

May 13. Issued 50,000 shares of common stock for $680,000.

June 14. Declared a 2% stock dividend on common stock, to be capitalized at the market price of the stock, which is $15 per share.

July 16. Issued the certificates for the dividend declared on June 14.

Oct. 30. Purchased 25,000 shares of treasury stock for $320,000.

Dec. 30. Declared a $0.12-per-share dividend on common stock.

31. Closed the credit balance of the income summary account, $775,000.

31. Closed the two dividends accounts to Retained Earnings.

Instructions

1. Enter the January 1 balances in T accounts for the stockholders' equity accounts listed. Also prepare T accounts for the following: Paid-In Capital from Sale of Treasury Stock; Stock Dividends Distributable; Stock Dividends; Cash Dividends.
2. Journalize the entries to record the transactions, and post to the eight selected accounts.
3. Prepare a retained earnings statement for the year ended December 31, 2012.
4. Prepare the Stockholders' Equity section of the December 31, 2012, balance sheet.

OBJ. 3, 4, 5, 7

✔ Sept. 1, Cash dividends, $156,000

PR 13-5B Entries for selected corporate transactions

Maui Outfitters Corporation manufactures and distributes leisure clothing. Selected transactions completed by Maui Outfitters during the current fiscal year are as follows:

Feb. 19. Split the common stock 4 for 1 and reduced the par from $80 to $20 per share. After the split, there were 600,000 common shares outstanding.

Mar. 1. Declared semiannual dividends of $1.20 on 75,000 shares of preferred stock and $0.08 on the 600,000 shares of $20 par common stock to stockholders of record on March 31, payable on April 30.

Apr. 30. Paid the cash dividends.

June 27. Purchased 90,000 shares of the corporation's own common stock at $24, recording the stock at cost.

Aug. 17. Sold 40,000 shares of treasury stock at $30, receiving cash.

Sept. 1. Declared semiannual dividends of $1.20 on the preferred stock and $0.12 on the common stock (before the stock dividend). In addition, a 1% common stock dividend was declared on the common stock outstanding, to be capitalized at the fair market value of the common stock, which is estimated at $28.

Oct. 31. Paid the cash dividends and issued the certificates for the common stock dividend.

Instructions

Journalize the transactions.

Cases & Projects

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Excel Success Special Activities

SA 13-1 Dividends per share

Truett Company issued 100,000 shares of $1 par value common stock and 12,000 shares of $100 par value cumulative preferred stock. The preferred stock has a dividend rate of $6.50 per share. The preferred dividend is in arrears for 2010 and 2011. Truett is able to pay a total dividend of $420,000 in 2012.

a. Open file *SA13-1_2e* and determine the dividend and dividend per share for common and preferred stock in 2013.

b. When you have completed the dividend calculations, perform a "save as," replacing the entire file name with the following:

SA13-1_2e [your first name initial]_[your last name]

SA 13-2 Dividends per share

Daniels Company began business on January 1, 2009, by issuing 50,000 shares of $1 par value common stock. On January 1, 2010, Daniels issued 4,000 shares of $120 par value, 5% cumulative preferred stock. A dividend was paid on the preferred stock in 2010, but not in 2011. A total dividend of $68,000 was paid in 2012.

a. Open file *SA13-2_2e* and determine the dividend and dividend per share for common and preferred stock in 2012.

b. When you have completed the dividend calculations, perform a "save as," replacing the entire file name with the following:

SA13-2_2e [your first name initial]_[your last name]

SA 13-3 Dividends per share

Sable Company has two classes of stock issued on January 1, 2010, as follows:

- Common stock, $1 par value, 150,000 issued and outstanding
- $2 cumulative preferred stock, $25 par value, 8,000 shares issued and outstanding

The cumulative preferred stock paid no dividends in 2010. The total dividends paid in 2011 and 2012 were $4,000 and $56,000, respectively.

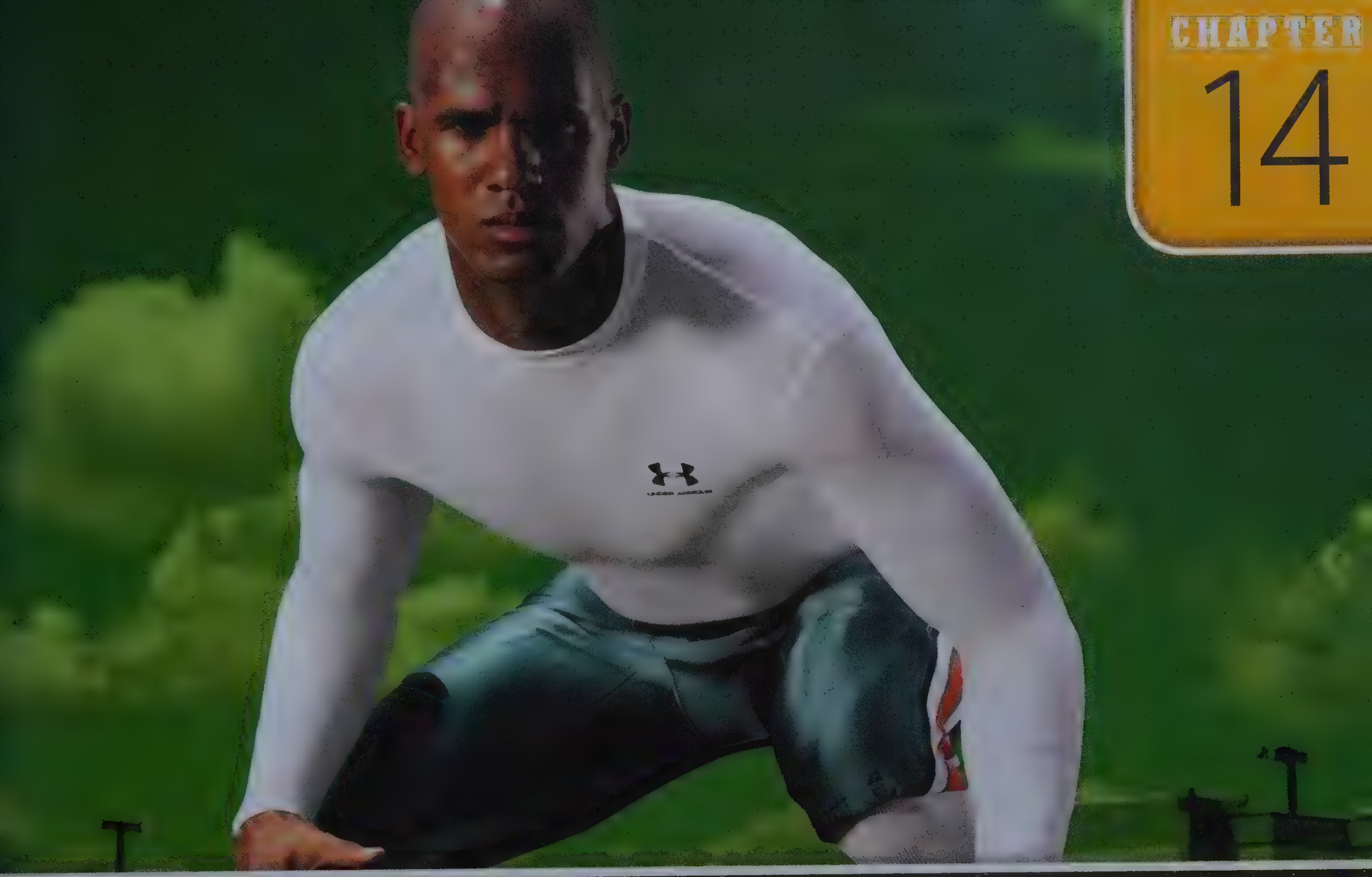
a. Open file *SA13-3_2e* and determine the dividend and dividend per share for common and preferred stock in 2012.

b. When you have completed the dividend calculations, perform a "save as," replacing the entire file name with the following:

SA13-3_2e [your first name initial]_[your last name]

CHAPTER

14



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Long-Term Liabilities: Bonds and Notes

Under Armour®

Most of us don't have enough money in our bank accounts to buy a house or a car by simply writing a check. Just imagine if you had to save the entire purchase price of a house before you could buy it! To help us make these types of purchases, banks will typically lend us the money, as long as we agree to repay the loan with interest in smaller future payments. Loans such as this, or long-term debt, allow us to purchase assets such as houses and cars today, which benefit us over the long term.

The use of debt can also help a business reach its objectives. Most businesses have to borrow money in order to acquire assets that they will use to generate income. For example, Under Armour®, a maker of performance athletic clothing, uses debt to acquire assets that it needs to manufacture and sell its products. Since it began in 1995, the company has used long-term debt to transform itself from a small business to a leading athletic wear company. The company now sells products in over 8,000 retail stores across the world. In addition, Under Armour® products are used by a number of teams in the National Football League, Major League Baseball, the National Hockey League, and in Olympic sports.

While debt can help companies like Under Armour® grow to achieve financial success, too much debt can be a financial burden that may even lead to bankruptcy. Just like individuals, businesses must manage debt wisely. In this chapter, we will discuss the nature of, accounting for, analysis of, and investments in long-term debt.

Learning Objectives

	After studying this chapter, you should be able to:	Example Exercises	Page
1	Compute the potential impact of long-term borrowing on earnings per share. Financing Corporations	EE 14-1	626
2	Describe the characteristics and terminology of bonds payable. Nature of Bonds Payable Bond Characteristics and Terminology Proceeds from Issuing Bonds		
3	Journalize entries for bonds payable. Accounting for Bonds Payable Bonds Issued at Face Amount		
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	Annual Payments	EE 14-7	636
5	Describe and illustrate the reporting of long-term liabilities including bonds and notes payable. Reporting Long-Term Liabilities		
6	Describe and illustrate how the number of times interest charges are earned is used to evaluate a company's financial condition. Financial Analysis and Interpretation: Number of Times Interest Charges Are Earned	EE 14-8	639

At a Glance 14 Page 646

1 Compute the potential impact of long-term borrowing on earnings per share.

Financing Corporations

Corporations finance their operations using the following sources:

1. Short-term debt, such as purchasing goods or services on account.
2. Long-term debt, such as issuing bonds or notes payable.
3. Equity, such as issuing common or preferred stock.

Short-term debt including the purchase of goods and services on account and the issuance of short-term notes payable was discussed in Chapter 11, while issuing equity in the form of common or preferred stock was discussed in Chapter 13. This chapter focuses on the use of long-term debt such as bonds and notes payable to finance a company's operations.

A **bond** is a form of an interest-bearing note. Like a note, a bond requires periodic interest payments with the face amount to be repaid at the maturity date. As creditors of the corporation, bondholder claims on the corporation's assets rank ahead of stockholders.

To illustrate the effects of long-term financing, assume Huckadee Corporation is considering the following plans to issue debt and equity:

	Plan 1		Plan 2		Plan 3	
	Amount	Percent	Amount	Percent	Amount	Percent
Issue 12% bonds	—	0%	—	0%	$2,000,000	50%
Issue 9% preferred stock, $50 par value	—	0	$2,000,000	50	1,000,000	25
Issue common stock, $10 par value	$4,000,000	100	2,000,000	50	1,000,000	25
Total amount of financing	$4,000,000	100%	$4,000,000	100%	$4,000,000	100%

Each of the preceding plans finances some of the corporation's operations by issuing common stock. However, the percentage financed by common stock varies

from 100% (Plan 1) to 25% (Plan 3). In deciding among financing plans, the effect on earnings per share is often considered.

Earnings per share (EPS) measures the income earned by each share of common stock. It is computed as follows:[1]

$$\text{Earnings per Share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Number of Common Shares Outstanding}}$$

To illustrate, assume the following data for Huckadee Corporation:

1. Earnings before interest and income taxes are $800,000.
2. The tax rate is 40%.
3. All bonds or stocks are issued at their par or face amount.

The effect of the preceding financing plans on Huckadee's net income and earnings per share is shown in Exhibit 1.

EXHIBIT 1

Effect of Alternative Financing Plans—$800,000 Earnings

	Plan 1	Plan 2	Plan 3
12% bonds	—	—	$2,000,000
Preferred 9% stock, $50 par	—	$2,000,000	1,000,000
Common stock, $10 par	$4,000,000	2,000,000	1,000,000
Total	$4,000,000	$4,000,000	$4,000,000
Earnings before interest and income tax	$ 800,000	$ 800,000	$ 800,000
Deduct interest on bonds	—	—	240,000
Income before income tax	$ 800,000	$ 800,000	$ 560,000
Deduct income tax	320,000	320,000	224,000
Net income	$ 480,000	$ 480,000	$ 336,000
Dividends on preferred stock	—	180,000	90,000
Available for dividends on common stock	$ 480,000	$ 300,000	$ 246,000
Shares of common stock outstanding	÷ 400,000	÷ 200,000	÷ 100,000
Earnings per share on common stock	$ 1.20	$ 1.50	$ 2.46

Exhibit 1 indicates that Plan 3 yields the highest earnings per share on common stock and, thus, is the most attractive for common stockholders. If the estimated earnings are more than $800,000, the difference between the earnings per share to common stockholders under Plans 1 and 3 is even greater.[2]

If smaller earnings occur, however, Plans 1 and 2 become more attractive to common stockholders. To illustrate, Exhibit 2 shows the effect on earnings per share if estimated earnings are $440,000 rather than $800,000 as estimated in Exhibit 1.

EXHIBIT 2

Effect of Alternative Financing Plans—$440,000 Earnings

	Plan 1	Plan 2	Plan 3
12% bonds	—	—	$2,000,000
Preferred 9% stock, $50 par	—	$2,000,000	1,000,000
Common stock, $10 par	$4,000,000	2,000,000	1,000,000
Total	$4,000,000	$4,000,000	$4,000,000
Earnings before interest and income tax	$ 440,000	$ 440,000	$ 440,000
Deduct interest on bonds	—	—	240,000
Income before income tax	$ 440,000	$ 440,000	$ 200,000
Deduct income tax	176,000	176,000	80,000
Net income	$ 264,000	$ 264,000	$ 120,000
Dividends on preferred stock	—	180,000	90,000
Available for dividends on common stock	$ 264,000	$ 84,000	$ 30,000
Shares of common stock outstanding	÷ 400,000	÷ 200,000	÷ 100,000
Earnings per share on common stock	$ 0.66	$ 0.42	$ 0.30

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[1] Earnings per share is also discussed in the *Financial Analysis and Interpretation* section of Chapter 13 and in Chapter 17.

[2] The higher earnings per share under Plan 3 is due to a finance concept known as *leverage*. This concept is discussed further in Chapter 17.

In addition to earnings per share, the corporation should consider other factors in deciding among the financing plans. For example, if bonds are issued, the interest and the face value of the bonds at maturity must be paid. If these payments are not made, the bondholders could seek court action and force the company into bankruptcy. In contrast, a corporation is not legally obligated to pay dividends on preferred or common stock.

Example Exercise 14-1 Alternative Financing Plans

OBJ. 1

Gonzales Co. is considering the following alternative plans for financing its company:

	Plan 1	Plan 2
Issue 10% bonds (at face value)	—	$2,000,000
Issue common stock, $10 par	$3,000,000	1,000,000

Income tax is estimated at 40% of income.

Determine the earnings per share of common stock under the two alternative financing plans, assuming income before bond interest and income tax is $750,000.

Follow My Example 14-1

	Plan 1	Plan 2
Earnings before bond interest and income tax	$750,000	$750,000
Bond interest	0	200,000[2]
Balance	$750,000	$550,000
Income tax	300,000[1]	220,000[3]
Net income	$450,000	$330,000
Dividends on preferred stock	0	0
Earnings available for common stock	$450,000	$330,000
Number of common shares	÷300,000	÷100,000
Earnings per share on common stock	$ 1.50	$ 3.30

[1] $750,000 × 40% [2] $2,000,000 × 10% [3] $550,000 × 40%

Practice Exercises: **PE 14-1A, PE 14-1B**

OBJ. 2 Describe the characteristics and terminology of bonds payable.

Nature of Bonds Payable

Corporate bonds normally differ in face amount, interest rates, interest payment dates, and maturity dates. Bonds also differ in other ways such as whether corporate assets are pledged in support of the bonds.

Bond Characteristics and Terminology

The underlying contract between the company issuing bonds and the bondholders is called a **bond indenture** or *trust indenture*. A bond issue is normally divided into a number of individual bonds. The face amount of each bond is call the principal. This is the amount that must be repaid on the dates the bonds mature. The principal is usually $1,000, or a multiple of $1,000. The interest on bonds may be payable annually, semiannually, or quarterly. Most bonds pay interest semiannually.

Dow Chemical Company's 8.55% bonds, maturing in 2019, sold for 119.753 on January 19, 2010.

When all bonds of an issue mature at the same time, they are called *term bonds*. If the bonds mature over several dates, they are called *serial bonds*. For example, one-tenth of an issue of $1,000,000 bonds, or $100,000, may mature 16 years from the issue date, another $100,000 in the 17th year, and so on.

Bonds that may be exchanged for other securities, such as common stock, are called *convertible bonds*. Bonds that a corporation reserves the right to redeem before their maturity are called *callable bonds*. Bonds issued on the basis of the general credit of the corporation are called *debenture bonds*.

Proceeds from Issuing Bonds

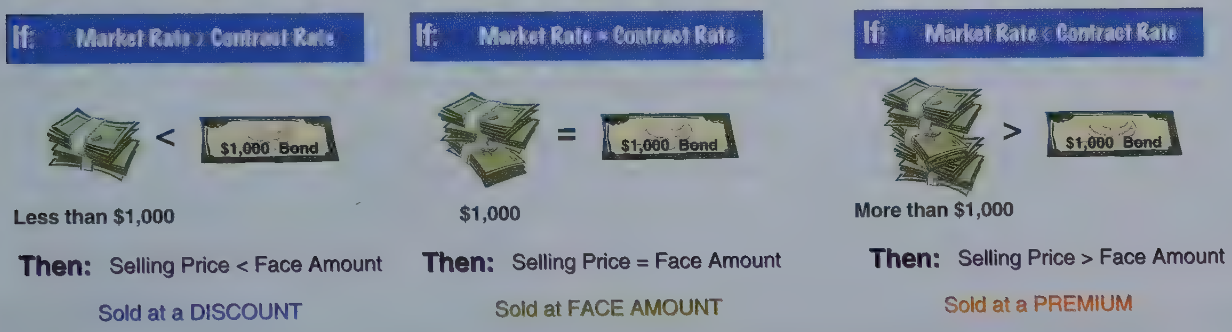
When a corporation issues bonds, the proceeds received for the bonds depend on:

1. The face amount of the bonds, which is the amount due at the maturity date.
2. The interest rate on the bonds.
3. The market rate of interest for similar bonds.

The face amount and the interest rate on the bonds are identified in the bond indenture. The interest rate to be paid on the face amount of the bond is called the **contract rate** or *coupon rate.*

The **market rate of interest**, sometimes called the **effective rate of interest**, is the rate determined from sales and purchases of similar bonds. The market rate of interest is affected by a variety of factors, including investors' expectations of current and future economic conditions.

By comparing the market and contract rates of interest, it can be determined whether the bonds will sell for more than, less than, or at their face amount, as shown below.



If the market rate equals the contract rate, bonds will sell at the **face amount**.

If the market rate is greater than the contract rate, the bonds will sell for less than their face value. The face amount of the bonds less the selling price is called a **discount**. A bond sells at a discount because buyers are not willing to pay the full face amount for bonds whose contract rate is lower than the market rate.

If the market rate is less than the contract rate, the bonds will sell for more than their face value. The selling price of the bonds less the face amount is called a **premium**. A bond sells at a premium because buyers are willing to pay more than the face amount for bonds whose contract rate is higher than the market rate.

The price of a bond is quoted as a percentage of the bond's face value. For example, a $1,000 bond quoted at 98 could be purchased or sold for $980 ($1,000 × 0.98). Likewise, bonds quoted at 109 could be purchased or sold for $1,090 ($1,000 × 1.09).

Business Connection

U.S. GOVERNMENT DEBT

Like many corporations, the U.S. government issues debt to finance its operations. The debt is issued by the U.S. Treasury Department in the form of U.S. Treasury bills, notes, and bonds, which have the following characteristics:

	Issued at	Interest Paid	Maturity
U.S. Treasury bills	Discount	None	1 year or less
U.S. Treasury notes	Face value	Semiannual	1 to 10 years
U.S. Treasury bonds	Face value	Semiannual	10 years or more

At the end of 2008, total U.S. government debt issued by the federal government was $9,985 billion. The Congressional Budget Office estimated that this amount would grow to $18,350 billion by 2014.

Source: Historical Tables: Budget of the U.S. Government, Fiscal Year 2010, U.S. Office of Management and Budget.

OBJ. 3 Journalize entries for bonds payable.

Accounting for Bonds Payable

Bonds may be issued at their face amount, a discount, or a premium. When bonds are issued at less or more than their face amount, the discount or premium must be amortized over the life of the bonds. At the maturity date, the face amount must be repaid. In some situations, a corporation may redeem bonds before their maturity date by repurchasing them from investors.

Bonds Issued at Face Amount

If the market rate of interest is equal to the contract rate of interest, the bonds will sell for their face amount or a price of 100. To illustrate, assume that on January 1, 2011, Eastern Montana Communications Inc. issued the following bonds:

Face amount	$100,000
Contract rate of interest	12%
Interest paid semiannually on June 30 and December 31.	
Term of bonds	5 years
Market rate of interest	12%

Since the contract rate of interest and the market rate of interest are the same, the bonds will sell at their face amount. The entry to record the issuance of the bonds is as follows:

2011 Jan.	1	Cash		100,000	
		Bonds Payable			100,000
		Issued $100,000 bonds payable at face amount.			

Every six months (on June 30 and December 31) after the bonds are issued, interest of $6,000 ($100,000 × 12% × ½) is paid. The first interest payment on June 30, 2011, is recorded as follows:

2011 June	30	Interest Expense		6,000	
		Cash			6,000
		Paid six months' interest on bonds.			

At the maturity date, the payment of the principal of $100,000 is recorded as follows:

2015 Dec.	31	Bonds Payable		100,000	
		Cash			100,000
		Paid bond principal at maturity date.			

Bonds Issued at a Discount

If the market rate of interest is more than the contract rate of interest, the bonds will sell for less than their face amount. This is because investors are not willing to pay the full face amount for bonds that pay a lower contract rate of interest than the rate they could earn on similar bonds (market rate). The difference between the face amount and the selling price of the bonds is the bond discount.[3]

To illustrate, assume that on January 1, 2011, Western Wyoming Distribution Inc. issued the following bonds:

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[3] The price that investors are willing to pay for the bonds depends on present value concepts. Present value concepts, including the computation of bond prices, are described and illustrated in Appendix 1 at the end of this chapter.

Face amount	$100,000
Contract rate of interest	12%
Interest paid semiannually on June 30 and December 31.	
Term of bonds	5 years
Market rate of interest	13%

Note:
Bonds will sell at a discount when the market rate of interest is higher than the contract rate.

Since the contract rate of interest is less than the market rate of interest, the bonds will sell at less than their face amount. Assuming the bonds sell for $96,406, the entry to record the issuance of the bonds is as follows:

2011 Jan.	1	Cash		96,406	
		Discount on Bonds Payable		3,594	
		Bonds Payable			100,000
		Issued $100,000 bonds at discount.			

The $96,406 may be viewed as the amount investors are willing to pay for bonds that have a lower contract rate of interest (12%) than the market rate (13%). The discount is the market's way of adjusting the contract rate of interest to the higher market rate of interest.

The account, Discount on Bonds Payable, is a contra account to Bonds Payable and has a normal debit balance. It is subtracted from Bonds Payable to determine the carrying amount (or book value) of the bonds payable. Thus, after the preceding entry, the carrying amount of the bonds payable is $96,406 ($100,000 – $3,594).

Example Exercise 14-2 Issuing Bonds at a Discount

OBJ. 3

On the first day of the fiscal year, a company issues a $1,000,000, 6%, five-year bond that pays semiannual interest of $30,000 ($1,000,000 × 6% × ½), receiving cash of $936,420. Journalize the entry to record the issuance of the bonds.

Follow My Example 14-2

Cash	936,420	
Discount on Bonds Payable	63,580	
Bonds Payable		1,000,000

Practice Exercises: **PE 14-2A, PE 14-2B**

Amortizing a Bond Discount

A bond discount must be amortized to interest expense over the life of the bond. The entry to amortize a bond discount is shown below.

		Interest Expense		XXX	
		Discount on Bonds Payable			XXX

The preceding entry may be made annually as an adjusting entry, or it may be combined with the semiannual interest payment. In the latter case, the entry would be as follows:

		Interest Expense		XXX	
		Discount on Bonds Payable			XXX
		Cash (amount of semiannual interest)			XXX

The two methods of computing the amortization of a bond discount are:

1. *Straight-line method*
2. *Effective interest rate method,* sometimes called the *interest method*

The **effective interest rate method** is required by generally accepted accounting principles. However, the straight-line method may be used if the results do not differ significantly from the interest method. The straight-line method is used in this chapter. The effective interest rate method is described and illustrated in Appendix 2 at the end of this chapter.

The straight-line method provides equal amounts of amortization. To illustrate, amortization of the Western Wyoming Distribution bond discount of $3,594 is computed below.

Discount on bonds payable	$3,594
Term of bonds	5 years
Semiannual amortization	$359.40 ($3,594/10 periods)

The combined entry to record the first interest payment and the amortization of the discount is as follows:

2011 June	30	Interest Expense		6,359.40	
		Discount on Bonds Payable			359.40
		Cash			6,000.00
		Paid semiannual interest and amortized $^1/_{10}$ of bond discount.			

The preceding entry is made on each interest payment date. Thus, the amount of the semiannual interest expense on the bonds ($6,359.40) remains the same over the life of the bonds.

The effect of the discount amortization is to increase the interest expense from $6,000.00 to $6,359.40 on every semiannual interest payment date. In effect, this increases the contract rate of interest from 12% to a rate of interest that approximates the market rate of 13%. In addition, as the discount is amortized, the carrying amount of the bonds increases until it equals the face amount of the bonds on the maturity date.

Example Exercise 14-3 Discount Amortization

OBJ. 3

Using the bond from Example Exercise 14-2, journalize the first interest payment and the amortization of the related bond discount.

Follow My Example 14-3

Interest Expense	36,358	
Discount on Bonds Payable		6,358
Cash		30,000
Paid interest and amortized the bond discount ($63,580/10).		

Practice Exercises: PE 14-3A, PE 14-3B

Note:
Bonds will sell at a premium when the market rate of interest is less than the contract rate.

Bonds Issued at a Premium

If the market rate of interest is less than the contract rate of interest, the bonds will sell for more than their face amount. This is because investors are willing to pay more for bonds that pay a higher contract rate of interest than the rate they could earn on similar bonds (market rate).

To illustrate, assume that on January 1, 2011, Northern Idaho Transportation Inc. issued the following bonds:

Face amount	$100,000
Contract rate of interest	12%
Interest paid semiannually on June 30 and December 31.	
Term of bonds	5 years
Market rate of interest	11%

Since the contract rate of interest is more than the market rate of interest, the bonds will sell at more than their face amount. Assuming the bonds sell for $103,769, the entry to record the issuance of the bonds is as follows:

2011 Jan.	1	Cash		103,769	
		Bonds Payable			100,000
		Premium on Bonds Payable			3,769
		Issued $100,000 bonds at a premium.			

The $3,769 premium may be viewed as the extra amount investors are willing to pay for bonds that have a higher contract rate of interest (12%) than the market rate (11%). The premium is the market's way of adjusting the contract rate of interest to the lower market rate of interest.

The account, Premium on Bonds Payable, has a normal credit balance. It is added to Bonds Payable to determine the carrying amount (or book value) of the bonds payable. Thus, after the preceding entry, the carrying amount of the bonds payable is $103,769 ($100,000 + $3,769).

Example Exercise 14-4 Issuing Bonds at a Premium

OBJ. 3

A company issues a $2,000,000, 12%, five-year bond that pays semiannual interest of $120,000 ($2,000,000 × 12% × ½), receiving cash of $2,154,440. Journalize the bond issuance.

Follow My Example 14-4

Cash	2,154,440	
Premium on Bonds Payable		154,440
Bonds Payable		2,000,000

Practice Exercises: **PE 14-4A, PE 14-4B**

Amortizing a Bond Premium

Like bond discounts, a bond premium must be amortized over the life of the bond. The amortization can be computed using either the straight-line or the effective interest rate method. The entry to amortize a bond premium is shown below.

		Premium on Bonds Payable		XXX	
		Interest Expense			XXX

The preceding entry may be made annually as an adjusting entry, or it may be combined with the semiannual interest payment. In the latter case, it would be:

		Interest Expense		XXX	
		Premium on Bonds Payable		XXX	
		Cash (amount of semiannual interest)			XXX

To illustrate, amortization of the preceding premium of $3,769 is computed using the straight-line method as shown below.

Premium on bonds payable	$3,769
Term of bonds	5 years
Semiannual amortization	$376.90 ($3,769/10 periods)

The combined entry to record the first interest payment and the amortization of the discount is as follows:

2011 June	30	Interest Expense		5,623.10	
		Premium on Bonds Payable		376.90	
		Cash			6,000.00
		Paid semiannual interest and amortized $^1/_{10}$ of bond discount.			

The preceding entry is made on each interest payment date. Thus, the amount of the semiannual interest expense ($5,623.10) on the bonds remains the same over the life of the bonds.

The effect of the premium amortization is to decrease the interest expense from $6,000.00 to $5,623.10. In effect, this decreases the rate of interest from 12% to a rate of interest that approximates the market rate of 11%. In addition, as the premium is amortized, the carrying amount of the bonds decreases until it equals the face amount of bonds on the maturity date.

Example Exercise 14-5 Premium Amortization

OBJ. 3

Using the bond from Example Exercise 14-4, journalize the first interest payment and the amortization of the related bond premium.

Follow My Example 14-5

Interest Expense	104,556	
Premium on Bonds Payable	15,444	
Cash		120,000
Paid interest and amortized the bond premium ($154,440/10).		

Practice Exercises: **PE 14-5A, PE 14-5B**

BusinessConnection

GENERAL MOTORS BONDS

In June 2009, after years of losses and weakening financial condition, **General Motors Corporation**, maker of Chevrolet, Saturn, Pontiac, and Saab cars and trucks, was forced to file for bankruptcy. As part of the bankruptcy and restructuring plan, the U.S. government made a multibillion-dollar cash investment in the company in exchange for 60% of the restructured company's common stock. In addition, General Motors' bondholders were forced to exchange their bonds for the remaining common shares in the restructured company, which were worth only a fraction of the bonds' face value. Bondholders also lost the security of interest payments and repayment of the bonds' face value at maturity.

Source: C. Isidore, "GM Bankruptcy: End of an Era," *CNNMoney.com*, June 2, 2009.

Bond Redemption

A corporation may redeem or call bonds before they mature. This is often done when the market rate of interest declines below the contract rate of interest. In such cases, the corporation may issue new bonds at a lower interest rate and use the proceeds to redeem the original bond issue.

Callable bonds can be redeemed by the issuing corporation within the period of time and at the price stated in the bond indenture. Normally, the call price is above the face value. A corporation may also redeem its bonds by purchasing them on the open market.[4]

A corporation usually redeems its bonds at a price different from the carrying amount (or book value) of the bonds. The **carrying amount** of bonds payable is the face amount of the bonds less any unamortized discount or plus any unamortized premium. A gain or loss may be realized on a bond redemption as follows:

1. A *gain* is recorded if the price paid for redemption is below the bond carrying amount.
2. A *loss* is recorded if the price paid for the redemption is above the carrying amount.

Gains and losses on the redemption of bonds are reported in the *Other income (loss)* section of the income statement.

To illustrate, assume that on June 30, 2011, a corporation has the following bond issue:

Face amount of bonds	$100,000
Premium on bonds payable	4,000

On June 30, 2011, the corporation redeemed one-fourth ($25,000) of these bonds in the market for $24,000. The entry to record the redemption is as follows:

2011 June	30	Bonds Payable		25,000	
		Premium on Bonds Payable		1,000	
		Cash			24,000
		Gain on Redemption of Bonds			2,000
		Redeemed $25,000 bonds for $24,000.			

In the preceding entry, only the portion of the premium related to the redeemed bonds ($4,000 × 25% = $1,000) is written off. The difference between the carrying amount of the bonds redeemed, $26,000 ($25,000 + $1,000), and the redemption price, $24,000, is recorded as a gain.

Assume that the corporation calls the remaining $75,000 of outstanding bonds, which are held by a private investor, for $79,500 on July 1, 2011. The entry to record the redemption is as follows:

2011 July	1	Bonds Payable		75,000	
		Premium on Bonds Payable		3,000	
		Loss on Redemption of Bonds		1,500	
		Cash			79,500
		Redeemed $75,000 bonds for $79,500.			

Example Exercise 14-6 Redemption of Bonds Payable

OBJ 3

A $500,000 bond issue on which there is an unamortized discount of $40,000 is redeemed for $475,000. Journalize the redemption of the bonds.

(Continued)

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[4] Some bond indentures require the corporation issuing the bonds to transfer cash to a special cash fund, called a *sinking fund*, over the life of the bond. Such funds help assure investors that there will be adequate cash to pay the bonds at their maturity date.

Follow My Example 14-6

Bonds Payable	500,000	
Loss on Redemption of Bonds	15,000	
Discount on Bonds Payable		40,000
Cash		475,000

Practice Exercises: **PE 14-6A, PE 14-6B**

OBJ. 4 Describe and illustrate the accounting for installment notes.

Installment Notes

Corporations often finance their operations by issuing bonds payable. As an alternative, corporations may issue installment notes. An **installment note** is a debt that requires the borrower to make equal periodic payments to the lender for the term of the note. Unlike bonds, each note payment includes the following:

1. Payment of a portion of the amount initially borrowed, called the *principal*
2. Payment of interest on the outstanding balance

At the end of the note's term, the principal will have been repaid in full.

Individuals typically use mortgage notes when buying a house or car.

Installment notes are often used to purchase specific assets such as equipment, and are often secured by the purchased asset. When a note is secured by an asset, it is called a **mortgage note**. If the borrower fails to pay a mortgage note, the lender has the right to take possession of the pledged asset and sell it to pay off the debt. Mortgage notes are typically issued by an individual bank.

Issuing an Installment Note

When an installment note is issued, an entry is recorded debiting Cash and crediting Notes Payable. To illustrate, assume that Lewis Company issues the following installment note to City National Bank on January 1, 2010.

Principal amount of note	$24,000
Interest rate	6%
Term of note	5 years
Annual payments	$5,698[5]

The entry to record the issuance of the note is as follows:

2010 Jan.	1	Cash		24,000	
		Notes Payable			24,000
		Issued installment note for cash.			

Annual Payments

The preceding note payable requires Lewis Company to repay the principal and interest in equal payments of $5,698 beginning December 3, 2010, for each of the next five years. Unlike bonds, however, each installment note payment includes an interest and principal component.

The interest portion of an installment note payment is computed by multiplying the interest rate by the carrying amount (book value) of the note at the beginning of the period. The principal portion of the payment is then computed as the difference between the total installment note payment (cash paid) and the interest component. These computations are illustrated in Exhibit 3 as follows:

---

[5] The amount of the annual payment is calculated by using the present value concepts discussed in Appendix 1. The annual payment of $5,698 is computed by dividing the $24,000 loan amount by the present value of an annuity of $1 for 5 periods at 6% (4.21236) from Exhibit 5 (rounded to the nearest dollar).

EXHIBIT 3 Amortization of Installment Notes

For the Year Ending	A January 1 Carrying Amount	B Note Payment (cash paid)	C Interest Expense (6% of January 1 Note Carrying Amount)	D Decrease in Notes Payable (B – C)	E December 31 Carrying Amount (A – D)
December 31, 2010	$24,000	$ 5,698	$ 1,440 (6% of $24,000)	$ 4,258	$19,742
December 31, 2011	19,742	5,698	1,185 (6% of $19,742)	4,513	15,229
December 31, 2012	15,229	5,698	914 (6% of $15,229)	4,784	10,445
December 31, 2013	10,445	5,698	627 (6% of $10,445)	5,071	5,374
December 31, 2014	5,374	5,698	324* (6% of $5,374)	5,374	0
		$28,490	$4,490	$24,000	

*Rounded ($5,374 – $5,698).

1. The January 1, 2010, carrying value (Column A) equals the amount borrowed from the bank. The January 1 balance in the following years equals the December 31 balance from the prior year.
2. The note payment (Column B) remains constant at $5,698, the annual cash payments required by the bank.
3. The interest expense (Column C) is computed at 6% of the installment note carrying amount at the beginning of each year. As a result, the interest expense decreases each year.
4. Notes payable decreases each year by the amount of the principal repayment (Column D). The principal repayment is computed by subtracting the interest expense (Column C) from the total payment (Column B). The principal repayment (Column D) increases each year as the interest expense decreases (Column C).
5. The carrying amount on December 31 (Column E) of the note decreases from $24,000, the initial amount borrowed, to $0 at the end of the five years.

The entry to record the first payment on December 31, 2010, is as follows:

2010 Dec.	31	Interest Expense		1,440	
		Notes Payable		4,258	
		Cash			5,698
		Paid principal and interest on installment note.			

The entry to record the second payment on December 31, 2011, is as follows:

2011 Dec.	31	Interest Expense		1,185	
		Notes Payable		4,513	
		Cash			5,698
		Paid principal and interest on installment note.			

As the prior entries show, the cash payment is the same in each year. The interest and principal repayment, however, change each year. This is because the carrying amount (book value) of the note decreases each year as principal is repaid, which decreases the interest component the next period.

The entry to record the final payment on December 31, 2014, is as follows:

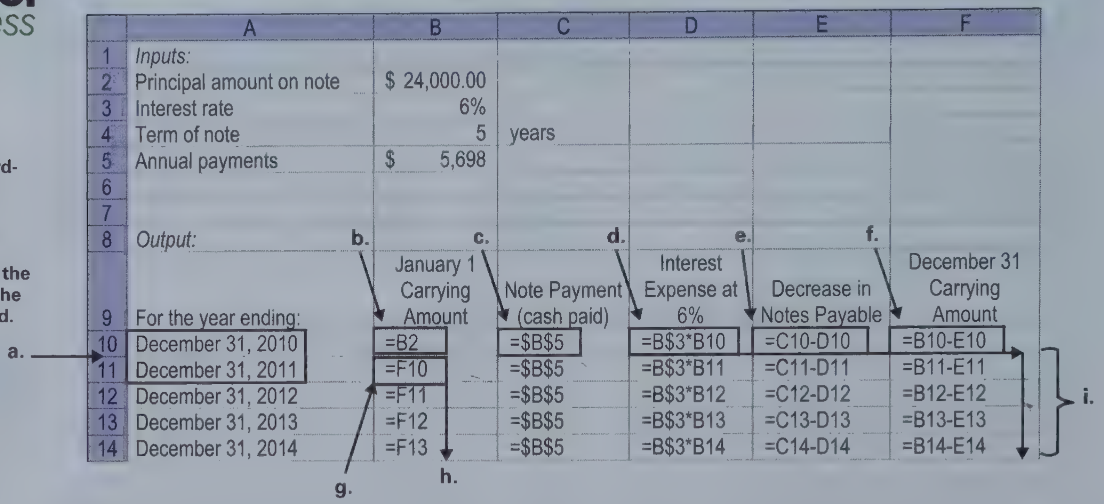
2014 Dec.	31	Interest Expense		324	
		Notes Payable		5,374	
		Cash			5,698
		Paid principal and interest on installment note.			

After the final payment, the carrying amount on the note is zero, indicating that the note has been paid in full. Any assets that secure the note would then be released by the bank.

excel success

Spreadsheet software can be used to develop an amortization table for installment notes as follows:

You can fill cells according to a sequence of numbers or dates by highlighting the cells containing the fill sequence, then using the fill handle to drag to the empty cells to be filled.



	A	B	C	D	E	F
1	*Inputs:*					
2	Principal amount on note	$ 24,000.00				
3	Interest rate	6%				
4	Term of note	5	years			
5	Annual payments	$ 5,698				
6						
7						
8	*Output:*					
9	For the year ending:	January 1 Carrying Amount	Note Payment (cash paid)	Interest Expense at 6%	Decrease in Notes Payable	December 31 Carrying Amount
10	December 31, 2010	=B2	=$B$5	=B$3*B10	=C10-D10	=B10-E10
11	December 31, 2011	=F10	=$B$5	=B$3*B11	=C11-D11	=B11-E11
12	December 31, 2012	=F11	=$B$5	=B$3*B12	=C12-D12	=B12-E12
13	December 31, 2013	=F12	=$B$5	=B$3*B13	=C13-D13	=B13-E13
14	December 31, 2014	=F13	=$B$5	=B$3*B14	=C14-D14	=B14-E14

The spreadsheet is developed by creating input and output areas. The four inputs are the principal amount of the note, interest rate, term of note, and annual payments, as shown in the chapter illustration. Use the following steps in formulating the output table.

- **a.** Enter the dates for December 31, 2010 and 2011, in cells A10 and A11. You may need to reformat the date in these two cells to appear as shown. Highlight these two cells, then drag the fill handle over the range that you want to fill, or A12:A14. The dates will automatically fill in with correct annual spacing.
- **b.** Enter in cell B10 the cell reference for principal amount of the note, =B2.
- **c.** Enter in cell C10 the cell reference for the annual payment, =$B$5. The dollar sign makes the cell absolute, so that the installment is fixed when copied.
- **d.** Enter in cell D10 the formula for the interest expense, =B$3*B10. The interest rate row must also remain fixed (absolute) for copying.
- **e.** Enter in cell E10 the formula for the decrease in notes payable, =C10-D10.
- **f.** Enter in cell F10 the formula for the December 31 carrying amount, =B10-E10.
- **g.** Enter in cell B11 the cell reference for the January 1 carrying amount, =F10.
- **h.** Copy B11 to B12:B14.
- **i.** Copy cells C10:F10 to C11:F14.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Try*It* This Excel Success example shows the use of an Excel function referred to as cell referencing. Go to the ***Excel Tutor*** titled **Absolute & Relative Cell References** for additional help on this useful Excel function!

Example Exercise 14-7 Journalizing Installment Notes

OBJ 4

On the first day of the fiscal year, a company issues a $30,000, 10%, five-year installment note that has annual payments of $7,914. The first note payment consists of $3,000 of interest and $4,914 of principal repayment.

a. Journalize the entry to record the issuance of the installment note.
b. Journalize the first annual note payment.

Follow My Example 14-7

a.

		Cash		30,000	
		Notes Payable			30,000
		Issued $30,000 of installment note for cash.			

b.

		Interest Expense		3,000	
		Notes Payable		4,914	
		Cash			7,914
		Paid principal and interest on installment note.			

Practice Exercises: **PE 14-7A, PE 14-7B**

Integrity, Objectivity, and Ethics in Business

LIAR'S LOANS

One of the main causes of the 2008 financial crisis was a widespread inability of homeowners to repay their home mortgages. While the weak economy contributed to these problems, many mortgage defaults were the result of unethical lending practices in the form of "stated income" or "liar's" loans. In a conventional home mortgage, lenders base the amount of a loan on the borrower's income, expenses, and total assets. These amounts are verified by reviewing the borrower's tax returns, bank statements, and payroll records. Liar's loans, however, based the amount of the loan on the borrower's "stated income," without verifying it through sources such as tax returns, W-2 statements, or payroll records. Without independent verification, borrowers often falsified or lied about their "stated income" in order to obtain a larger loan than they were qualified for. Once in their homes, many of these borrowers were unable to make their loan payments, causing them to default on their home mortgages.

Reporting Long-Term Liabilities

OBJ. 5 Describe and illustrate the reporting of long-term liabilities including bonds and notes payable.

Bonds payable and notes payable are reported as liabilities on the balance sheet. Any portion of the bonds or notes that is due within one year is reported as a current liability. Any remaining bonds or notes are reported as a long-term liability.

Any unamortized premium is reported as an addition to the face amount of the bonds. Any unamortized discount is reported as a deduction from the face amount of the bonds. A description of the bonds and notes should also be reported either on the face of the financial statements or in the accompanying notes.

The reporting of bonds and notes payable for Mornin' Joe is shown below.

Mornin' Joe
Balance Sheet
December 31, 2012

Current liabilities:		
Accounts payable	$133,000	
Notes payable (current portion)	200,000	
Salaries and wages payable	42,000	
Payroll taxes payable	16,400	
Interest payable	40,000	
Total current liabilities		$ 431,400
Long-term liabilities:		
Bonds payable, 8%, due December 31, 2030	$500,000	
Less unamortized discount	16,000	$ 484,000
Notes payable		1,400,000
Total long-term liabilities		$1,884,000
Total liabilities		$2,315,400

Financial Analysis and Interpretation: Number of Times Interest Charges Are Earned

OBJ. 6 Describe and illustrate how the number of times interest charges are earned is used to evaluate a company's financial condition.

As we have discussed, the assets of a company are subject to the (1) claims of creditors and (2) the rights of owners. As creditors, bondholders are primarily concerned with the company's ability to make its periodic interest payments and repay the face amount of the bonds at maturity.

Analysts assess the risk that bondholders will not receive their interest payments by computing the **number of times interest charges are earned** during the year as follows:

$$\text{Number of Times Interest Charges Are Earned} = \frac{\text{Income Before Income Tax} + \text{Interest Expense}}{\text{Interest Expense}}$$

This ratio computes the number of times interest payments could be paid out of current period earnings, measuring the company's ability to make its interest payments. Because interest payments reduce income tax expense, the ratio is computed using income before tax.

To illustrate, the following data were taken from the 2008 annual report of Under Armour, Inc. (in thousands):

Interest expense	$ 850
Income before income tax	69,900

The number of times interest charges are earned for Under Armour, Inc., is computed as follows:

$$\text{Number of Times Interest Charges Are Earned} = \frac{\$69{,}900 + \$850}{\$850} = 83.24$$

Compare this to the number of times interest charges are earned for Southwest Airlines (an airline), and Verizon Communications (a telecommunications company) shown on the next page (in thousands):

	Under Armour	Southwest Airlines	Verizon Communications
Interest expense	$850	$105,000	$1,819,000
Income before income tax expense	$69,900	$278,000	$9,759,000
Number of times interest charges are earned	83.24	3.65	6.37

Under Armour's number of times interest charges are earned is 83.24, indicating that the company generates enough income before taxes to pay (cover) its interest payments 83.24 times. As a result, debtholders have extremely good protection in the event of an earnings decline. Compare this to Southwest Airlines, which only generates enough income before taxes to pay (cover) its interest payments 3.65 times. A small decrease in Southwest Airlines' earnings could jeopardize the payment of interest. Verizon Communications falls in between, with a ratio of 6.37.

Example Exercise 14-8 Number of Times Interest Charges Are Earned

OBJ 6

Harris Industries reported the following on the company's income statement in 2012 and 2011:

	2012	2011
Interest expense	$ 200,000	$180,000
Income before income tax expense	1,000,000	720,000

a. Determine the number of times interest charges were earned for 2012 and 2011. Round to one decimal place.
b. Is the number of times interest charges are earned improving or declining?

Follow My Example 14-8

a. 2012:

$$\text{Number of times interest charges are earned: } 6.0 = \frac{\$1{,}000{,}000 + \$200{,}000}{\$200{,}000}$$

2011:

$$\text{Number of times interest charges are earned: } 5.0 = \frac{\$720{,}000 + \$180{,}000}{\$180{,}000}$$

b. The number of times interest charges are earned has increased from 5.0 in 2011 to 6.0 in 2012. Thus, the debtholders have improved confidence in the company's ability to make its interest payments.

Practice Exercises: **PE 14-8A, PE 14-8B**

APPENDIX 1

Present Value Concepts and Pricing Bonds Payable

When a corporation issues bonds, the price that investors are willing to pay for the bonds depends on the following:

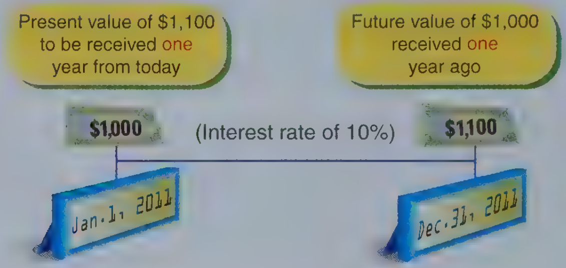
1. The face amount of the bonds, which is the amount due at the maturity date.
2. The periodic interest to be paid on the bonds.
3. The market rate of interest.

An investor determines how much to pay for the bonds by computing the present value of the bond's future cash receipts, using the market rate of interest. A bond's future cash receipts include its face value at maturity and the periodic interest payments.

Present Value Concepts

The concept of present value is based on the time value of money. The *time value of money concept* recognizes that cash received today is worth more than the same amount of cash to be received in the future.

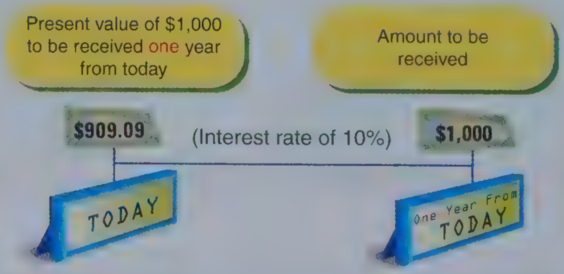
To illustrate, what would you rather have: $1,000 today or $1,000 one year from now? You would rather have the $1,000 today because it could be invested to earn interest. For example, if the $1,000 could be invested to earn 10% per year, the $1,000 will accumulate to $1,100 ($1,000 plus $100 interest) in one year. In this sense, you can think of the $1,000 in hand today as the **present value** of $1,100 to be received a year from today. This present value is illustrated below.



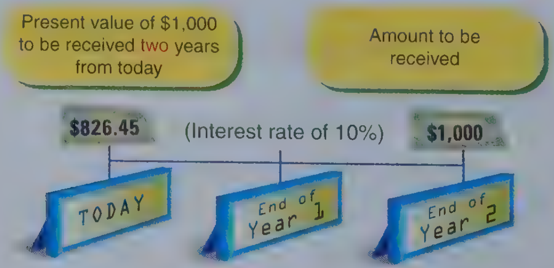
A related concept to present value is **future value**. To illustrate, using the preceding example, the $1,100 to be received on December 31, 2011, is the *future value* of $1,000 on January 1, 2011, assuming an interest rate of 10%.

Present Value of an Amount

To illustrate the present value of an amount, assume that $1,000 is to be received in one year. If the market rate of interest is 10%, the present value of the $1,000 is $909.09 ($1,000/1.10). This present value is illustrated below.



If the $1,000 is to be received in two years, with interest of 10% compounded at the end of the first year, the present value is $826.45 ($909.09/1.10).[6] This present value is illustrated below.



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[6] Note that the future value of $826.45 in two years, at an interest rate of 10% compounded annually, is $1,000.

The present value of an amount to be received in the future can be determined by a series of divisions such as illustrated on the previous page. In practice, however, it is easier to use a table of present values.

Spreadsheet software with built-in present value functions can be used to calculate present values.

The *present value of $1* table is used to find the present value factor for $1 to be received after a number of periods in the future. The amount to be received is then multiplied by this factor to determine its present value.

To illustrate, Exhibit 4 is a partial table of the present value of $1.[7] Exhibit 4 indicates that the present value of $1 to be received in two years with a market rate of interest of 10% a year is 0.82645. Multiplying $1,000 to be received in two years by 0.82645 yields $826.45 ($1,000 × 0.82645). This amount is the same amount computed earlier. In Exhibit 4, the Periods column represents the number of compounding periods, and the percentage columns represent the compound interest rate per period. Thus, the present value factor from Exhibit 4 for 12% for five years is 0.56743. If the interest is compounded semiannually, the interest rate is 6% (12% divided by 2), and the number of periods is 10 (5 years × 2 times per year). Thus, the present value factor from Exhibit 4 for 6% and 10 periods is 0.55840. Some additional examples using Exhibit 4 are shown below.

EXHIBIT 4 **Present Value of $1 at Compound Interest**

Periods	5%	5½%	6%	6½%	7%	10%	11%	12%	13%	14%
1	0.95238	0.94787	0.94340	0.93897	0.93458	0.90909	0.90090	0.89286	0.88496	0.87719
2	0.90703	0.89845	0.89000	0.88166	0.87344	0.82645	0.81162	0.79719	0.78315	0.76947
3	0.86384	0.85161	0.83962	0.82785	0.81630	0.75132	0.73119	0.71178	0.69305	0.67497
4	0.82270	0.80722	0.79209	0.77732	0.76290	0.68301	0.65873	0.63552	0.61332	0.59208
5	0.78353	0.76513	0.74726	0.72988	0.71299	0.62092	0.59345	0.56743	0.54276	0.51937
6	0.74622	0.72525	0.70496	0.68533	0.66634	0.56447	0.53464	0.50663	0.48032	0.45559
7	0.71068	0.68744	0.66506	0.64351	0.62275	0.51316	0.48166	0.45235	0.42506	0.39964
8	0.67684	0.65160	0.62741	0.60423	0.58201	0.46651	0.43393	0.40388	0.37616	0.35056
9	0.64461	0.61763	0.59190	0.56735	0.54393	0.42410	0.39092	0.36061	0.33288	0.30751
10	0.61391	0.58543	0.55840	0.53273	0.50835	0.38554	0.35218	0.32197	0.29459	0.26974

	Number of Periods	Interest Rate	Present Value of $1 Factor from Exhibit 4
10% for *two* years compounded *annually*	2	10%	0.82645
10% for *two* years compounded *semiannually*	4	5%	0.82270
10% for *three* years compounded *semiannually*	6	5%	0.74622
12% for *five* years compounded *semiannually*	10	6%	0.55840

Present Value of the Periodic Receipts A series of equal cash receipts spaced equally in time is called an **annuity**. The **present value of an annuity** is the sum of the present values of each cash receipt. To illustrate, assume that $100 is to be received annually for two years and that the market rate of interest is 10%. Using Exhibit 4, the present value of the receipt of the two amounts of $100 is $173.55, as shown on the next page.

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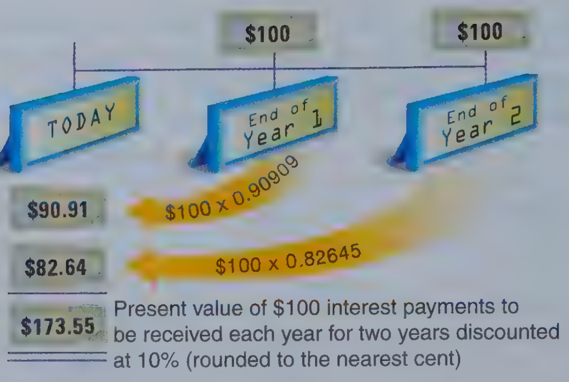
[7] To simplify the illustrations and homework assignments, the tables presented in this chapter are limited to 10 periods for a small number of interest rates, and the amounts are carried to only five decimal places. Computer programs are available for determining present value factors for any number of interest rates, decimal places, or periods. More complete interest tables are presented in Appendix A of the text.



Instead of using present value of $1 tables to determine the present value of each cash flow separately, such as Exhibit 4, the present value of an annuity can be computed in a single step. Using a value from the present value of an annuity of $1 table in Exhibit 5, the present value of the entire annuity can be calculated by multiplying the equal cash payment times the appropriate present value of an annuity of $1.

EXHIBIT 5 **Present Value of an Annuity of $1 at Compound Interest**

Periods	5%	5½%	6%	6½%	7%	10%	11%	12%	13%	14%
1	0.95238	0.94787	0.94340	0.93897	0.93458	0.90909	0.90090	0.89286	0.88496	0.87719
2	1.85941	1.84632	1.83339	1.82063	1.80802	1.73554	1.71252	1.69005	1.66810	1.64666
3	2.72325	2.69793	2.67301	2.64848	2.62432	2.48685	2.44371	2.40183	2.36115	2.32163
4	3.54595	3.50515	3.46511	3.42580	3.38721	3.16987	3.10245	3.03735	2.97447	2.91371
5	4.32948	4.27028	4.21236	4.15568	4.10020	3.79079	3.69590	3.60478	3.51723	3.43308
6	5.07569	4.99553	4.91732	4.84101	4.76654	4.35526	4.23054	4.11141	3.99755	3.88867
7	5.78637	5.68297	5.58238	5.48452	5.38929	4.86842	4.71220	4.56376	4.42261	4.28830
8	6.46321	6.33457	6.20979	6.08875	5.97130	5.33493	5.14612	4.96764	4.79677	4.63886
9	7.10782	6.95220	6.80169	6.65610	6.51523	5.75902	5.53705	5.32825	5.13166	4.94637
10	7.72174	7.53763	7.36009	7.18883	7.02358	6.14457	5.88923	5.65022	5.42624	5.21612

To illustrate, the present value of $100 to be received at the end of each of the next two years at 10% compound interest per period is $173.55 ($100 × 1.73554). This amount is the same amount computed above using the present value of $1.

Pricing Bonds

The selling price of a bond is the sum of the present values of:

1. The face amount of the bonds due at the maturity date
2. The periodic interest to be paid on the bonds

The market rate of interest is used to compute the present value of both the face amount and the periodic interest.

To illustrate the pricing of bonds, assume that Southern Utah Communications Inc. issued the following bond on January 1, 2011:

Face amount	$100,000
Contract rate of interest	12%
Interest paid semiannually on June 30 and December 31.	
Term of bonds	5 years

Market Rate of Interest of 12% Assuming a market rate of interest of 12%, the bonds would sell for their face amount. As shown by the following present value computations, the bonds would sell for $100,000.

Present value of face amount of $100,000 due in 5 years, at 12% compounded semiannually: $100,000 × 0.55840 (present value of $1 for 10 periods at 6% from Exhibit 4)	$ 55,840
Present value of 10 semiannual interest payments of $6,000, at 12% compounded semiannually: $6,000 × 7.36009 (present value of an annuity of $1 for 10 periods at 6% from Exhibit 5)	44,160
Total present value of bonds	$100,000

Market Rate of Interest of 13% Assuming a market rate of interest of 13%, the bonds would sell at a discount. As shown by the following present value computations, the bonds would sell for $96,406.[8]

Present value of face amount of $100,000 due in 5 years, at 13% compounded semiannually: $100,000 × 0.53273 (present value of $1 for 10 periods at 6½% from Exhibit 4)	$53,273
Present value of 10 semiannual interest payments of $6,000, at 13% compounded semiannually: $6,000 × 7.18883 (present value of an annuity of $1 for 10 periods at 6½% from Exhibit 5)	43,133
Total present value of bonds	$96,406

Market Rate of Interest of 11% Assuming a market rate of interest of 11%, the bonds would sell at a premium. As shown by the following present value computations, the bonds would sell for $103,769.

Present value of face amount of $100,000 due in 5 years, at 11% compounded semiannually: $100,000 × 0.58543 (present value of $1 for 10 periods at 5½% from Exhibit 4)	$ 58,543
Present value of 10 semiannual interest payments of $6,000, at 11% compounded semiannually: $6,000 × 7.53763 (present value of an annuity of $1 for 10 periods at 5½% from Exhibit 5)	45,226
Total present value of bonds	$103,769

As shown above, the selling price of the bond varies with the present value of the bond's face amount at maturity, interest payments, and the market rate of interest.

APPENDIX 2

Effective Interest Rate Method of Amortization

The effective interest rate method of amortization provides for a constant *rate* of interest over the life of the bonds. As the discount or premium is amortized, the carrying amount of the bonds changes. As a result, interest expense also changes each period. This is in contrast to the straight-line method, which provides for a constant *amount* of interest expense each period.

The interest rate used in the effective interest rate method of amortization, sometimes called the *interest method*, is the market rate on the date the bonds are issued. The carrying amount of the bonds is multiplied by this interest rate to determine the interest expense for the period. The difference between the interest expense and the interest payment is the amount of discount or premium to be amortized for the period.

[8] Some corporations issue bonds called **zero-coupon bonds** that provide for only the payment of the face amount at maturity. Such bonds sell for large discounts. In this example, such a bond would sell for $53,273, which is the present value of the face amount.

Amortization of Discount by the Interest Method

To illustrate, the following data taken from the chapter illustration of issuing bonds at a discount are used:

Face value of 12%, 5-year bonds, interest compounded semiannually	$100,000
Present value of bonds at effective (market) rate of interest of 13%	96,406
Discount on bonds payable	$ 3,594

Exhibit 6 illustrates the interest method for the preceding bonds. Exhibit 6 begins with six columns. The first column is not lettered. The remaining columns are lettered A through E. The exhibit was then prepared as follows:

Step 1. List the interest payments dates in the first column, which for the preceding bond are 10 interest payment dates (semiannual interest over five years). Also, list on the first line the initial amount of discount in Column D and the initial carrying amount (selling price) of the bonds in Column E.

Step 2. List in Column A the semiannual interest payments, which for the preceding bond is $6,000 ($100,000 × 6%).

Step 3. Compute the interest expense in Column B by multiplying the bond carrying amount at the beginning of each period times 6½%, which is the effective interest (market) rate.

Step 4. Compute the discount to be amortized each period in Column C by subtracting the interest payment in Column A ($6,000) from the interest expense for the period shown in Column B.

Step 5. Compute the remaining unamortized discount by subtracting the amortized discount in Column C for the period from the unamortized discount at the beginning of the period in Column D.

Step 6. Compute the bond carrying amount at the end of the period by subtracting the unamortized discount at the end of the period in Column D from the face amount of the bonds ($100,000).

Steps 3–6 are repeated for each interest payment.

As shown in Exhibit 6, the interest expense increases each period as the carrying amount of the bond increases. Also, the unamortized discount decreases each period to zero at the maturity date. Finally, the carrying amount of the bonds increases from $96,406 to $100,000 (the face amount) at maturity.

EXHIBIT 6 **Amortization of Discount on Bonds Payable**

	A	B	C	D	E
Interest Payment Date	Interest Paid (6% of Face Amount)	Interest Expense (6½% of Bond Carrying Amount)	Discount Amortization (B – A)	Unamortized Discount (D – C)	Bond Carrying Amount ($100,000 – D)
				$3,594	$ 96,406
June 30, 2011	$6,000	$6,266 (6½% of $96,406)	$266	3,328	96,672
Dec. 31, 2011	6,000	6,284 (6½% of $96,672)	284	3,044	96,956
June 30, 2012	6,000	6,302 (6½% of $96,956)	302	2,742	97,258
Dec. 31, 2012	6,000	6,322 (6½% of $97,258)	322	2,420	97,580
June 30, 2013	6,000	6,343 (6½% of $97,580)	343	2,077	97,923
Dec. 31, 2013	6,000	6,365 (6½% of $97,923)	365	1,712	98,288
June 30, 2014	6,000	6,389 (6½% of $98,288)	389	1,323	98,677
Dec. 31, 2014	6,000	6,414 (6½% of $98,677)	414	909	99,091
June 30, 2015	6,000	6,441 (6½% of $99,091)	441	468	99,532
Dec. 31, 2015	6,000	6,470 (6½% of $99,532)	468*	—	100,000

*Cannot exceed unamortized discount.

The entry to record the first interest payment on June 30, 2011, and the related discount amortization is as follows:

2011				
June	30	Interest Expense	6,266	
		Discount on Bonds Payable		266
		Cash		6,000
		Paid semiannual interest and amortized bond discount for 1/2 year.		

If the amortization is recorded only at the end of the year, the amount of the discount amortized on December 31, 2011, would be $550. This is the sum of the first two semiannual amortization amounts ($266 and $284) from Exhibit 6.

Amortization of Premium by the Interest Method

To illustrate, the following data taken from the chapter illustration of issuing bonds at a premium are used:

Present value of bonds at effective (market) rate of interest of 11%	$103,769
Face value of 12%, 5-year bonds, interest compounded semiannually	100,000
Premium on bonds payable	$ 3,769

Exhibit 7 illustrates the interest method for the preceding bonds. Exhibit 7 begins with six columns. The first column is not lettered. The remaining columns are lettered A through E. The exhibit was then prepared as follows:

Step 1. List the number of interest payments in the first column, which for the preceding bond are 10 interest payments (semiannual interest over 5 years). Also, list on the first line the initial amount of premium in Column D and the initial carrying amount of the bonds in Column E.

Step 2. List in Column A the semiannual interest payments, which for the preceding bond is $6,000 ($100,000 × 6%).

Step 3. Compute the interest expense in Column B by multiplying the bond carrying amount at the beginning of each period times 5½%, which is the effective interest (market) rate.

Step 4. Compute the premium to be amortized each period in Column C by subtracting the interest expense for the period shown in Column B from the interest payment in Column A ($6,000).

EXHIBIT 7 **Amortization of Premium on Bonds Payable**

Interest Payment Date	A Interest Paid (6% of Face Amount)	B Interest Expense (5½% of Bond Carrying Amount)	C Premium Amortization (A – B)	D Unamortized Premium (D – C)	E Bond Carrying Amount ($100,000 + D)
				$3,769	$103,769
June 30, 2011	$6,000	$5,707 (5½% of $103,769)	$293	3,476	103,476
Dec. 31, 2011	6,000	5,691 (5½% of $103,476)	309	3,167	103,167
June 30, 2012	6,000	5,674 (5½% of $103,167)	326	2,841	102,841
Dec. 31, 2012	6,000	5,656 (5½% of $102,841)	344	2,497	102,497
June 30, 2013	6,000	5,637 (5½% of $102,497)	363	2,134	102,134
Dec. 31, 2013	6,000	5,617 (5½% of $102,134)	383	1,751	101,751
June 30, 2014	6,000	5,596 (5½% of $101,751)	404	1,347	101,347
Dec. 31, 2014	6,000	5,574 (5½% of $101,347)	426	921	100,921
June 30, 2015	6,000	5,551 (5½% of $100,921)	449	472	100,472
Dec. 31, 2015	6,000	5,526 (5½% of $100,472)	472*	—	100,000

*Cannot exceed unamortized premium.

Step 5. Compute the remaining unamortized premium by subtracting the amortized premium in Column C for the period from the unamortized premium at the beginning of the period in Column D.

Step 6. Compute the bond carrying amount at the end of the period in Column D by adding the unamortized premium at the end of the period to the face amount of the bonds ($100,000).

Steps 3–6 are repeated for each interest payment.

As shown in Exhibit 7, the interest expense decreases each period as the carrying amount of the bond decreases. Also, the unamortized premium decreases each period to zero at the maturity date. Finally, the carrying amount of the bonds decreases from $103,769 to $100,000 (the face amount) at maturity.

The entry to record the first interest payment on June 30, 2011, and the related premium amortization is as follows:

2011 June	30	Interest Expense		5,707	
		Premium on Bonds Payable		293	
		Cash			6,000
		Paid semiannual interest and amortized bond premium for ½ year.			

If the amortization is recorded only at the end of the year, the amount of the premium amortized on December 31, 2011, would be $602. This is the sum of the first two semiannual amortization amounts ($293 and $309) from Exhibit 7.

At a Glance 14

OBJ. 1 Compute the potential impact of long-term borrowing on earnings per share.

Key Points Corporations can finance their operations by issuing short-term debt, long-term debt, or equity. One of the many factors that influence a corporation's decision on whether it should issue long-term debt or equity is the effect each alternative has on earnings per share.

Learning Outcomes	Example Exercises	Practice Exercises
• Define the concept of a bond.		
• Calculate and compare the effect of alternative long-term financing plans on earnings per share.	EE14-1	PE14-1A, 14-1B

OBJ. 2 Describe the characteristics and terminology of bonds payable.

Key Points A corporation that issues bonds enters into a contract, or bond indenture.

When a corporation issues bonds, the price that buyers are willing to pay for the bonds depends on (1) the face amount of the bonds, (2) the periodic interest to be paid on the bonds, and (3) the market rate of interest.

Learning Outcomes	Example Exercises	Practice Exercises
• Define the characteristics of a bond.		
• Describe the various types of bonds.		
• Describe the factors that determine the price of a bond.		

OBJ. 3 Journalize entries for bonds payable.

Key Points The journal entry for issuing bonds payable debits Cash and credits Bonds Payable. Any difference between the face amount of the bonds and the selling price is debited to Discount on Bonds Payable or credited to Premium on Bonds Payable when the bonds are issued. The discount or premium on bonds payable is amortized to interest expense over the life of the bonds.

At the maturity date, the entry to record the repayment of the face value of a bond is a debit to Bonds Payable and a credit to Cash.

When a corporation redeems bonds before they mature, Bonds Payable is debited for the face amount of the bonds, the premium (discount) on bonds payable account is debited (credited) for its unamoritized balance, Cash is credited, and any gain or loss on the redemption is recorded.

Learning Outcomes	Example Exercises	Practice Exercises
• Journalize the issuance of bonds at face value and the payment of periodic interest.		
• Journalize the issuance of bonds at a discount.	EE14-2	PE14-2A, 14-2B
• Journalize the amortization of a bond discount.	EE14-3	PE14-3A, 14-3B
• Journalize the issuance of bonds at a premium.	EE14-4	PE14-4A, 14-4B
• Journalize the amortization of a bond premium.	EE14-5	PE14-5A, 14-5B
• Describe bond redemptions.		
• Journalize the redemption of bonds payable.	EE14-6	PE14-6A, 14-6B

OBJ. 4 Describe and illustrate the accounting for installment notes.

Key Points An installment note requires the borrower to make equal periodic payments to the lender for the term of the note. Unlike bonds, the annual payment in an installment note consists of both principal and interest. The journal entry for the annual payment debits Interest Expense and Notes Payable and credits Cash for the amount of the payment. After the final payment, the carrying amount on the note is zero.

Learning Outcomes	Example Exercises	Practice Exercises
• Define the characteristics of an installment note.		
• Journalize the issuance of installment notes.	EE14-7	PE14-7A, 14-7B
• Journalize the annual payment for an installment note.		

OBJ. 5 Describe and illustrate the reporting of long-term liabilities including bonds and notes payable.

Key Points Bonds payable and notes payable are usually reported as long-term liabilities. If the balance sheet date is within one year, they are reported as a current liability. A discount on bonds should be reported as a deduction from the related bonds payable. A premium on bonds should be reported as an addition to related bonds payable.

Learning Outcome	Example Exercises	Practice Exercises
• Illustrate the balance sheet presentation of bonds payable and notes payable.		

OBJ. 6 **Describe and illustrate how the number of times interest charges are earned is used to evaluate a company's financial condition.**

Key Points The number of times interest charges are earned measures the risk to bondholders that a company will not be able to make its interest payments. It is computed by dividing income before income tax plus interest expense by interest expense. This ratio measures the number of times interest payments could be paid (covered) by current period earnings.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe and compute the number of times interest charges are earned. • Interpret the number of times interest charges are earned.	EE14-8	PE14-8A, 14-8B

Key Terms

bond (624)
bond indenture (626)
carrying amount (633)
contract rate (627)
discount (627)
earnings per share (EPS) (625)
effective interest rate method (630)
effective rate of interest (627)
face amount (627)
installment note (634)
market rate of interest (627)
mortgage note (634)
number of times interest charges are earned (638)
premium (627)

Illustrative Problem

The fiscal year of Russell Inc., a manufacturer of acoustical supplies, ends December 31. Selected transactions for the period 2011 through 2018, involving bonds payable issued by Russell Inc., are as follows:

2011
June 30. Issued $2,000,000 of 25-year, 7% callable bonds dated June 30, 2011, for cash of $1,920,000. Interest is payable semiannually on June 30 and December 31.
Dec. 31. Paid the semiannual interest on the bonds.
31. Recorded straight-line amortization of $1,600 of discount on the bonds.
31. Closed the interest expense account.

2012
June 30. Paid the semiannual interest on the bonds.
Dec. 31. Paid the semiannual interest on the bonds.
31. Recorded straight-line amortization of $3,200 of discount on the bonds.
31. Closed the interest expense account.

2018
June 30. Recorded the redemption of the bonds, which were called at 101.5. The balance in the bond discount account is $57,600 after the payment of interest and amortization of discount have been recorded. (Record the redemption only.)

Instructions

1. Journalize entries to record the preceding transactions.
2. Determine the amount of interest expense for 2011 and 2012.
3. Determine the carrying amount of the bonds as of December 31, 2012.

Solution

1.

2011					
June	30	Cash		1,920,000	
		Discount on Bonds Payable		80,000	
		Bonds Payable			2,000,000
Dec.	31	Interest Expense		70,000	
		Cash			70,000
	31	Interest Expense		1,600	
		Discount on Bonds Payable			1,600
		Amortization of discount from July 1 to December 31.			
	31	Income Summary		71,600	
		Interest Expense			71,600
2012					
June	30	Interest Expense		70,000	
		Cash			70,000
Dec.	31	Interest Expense		70,000	
		Cash			70,000
	31	Interest Expense		3,200	
		Discount on Bonds Payable			3,200
		Amortization of discount from January 1 to December 31.			
	31	Income Summary		143,200	
		Interest Expense			143,200
2018					
June	30	Bonds Payable		2,000,000	
		Loss on Redemption of Bonds Payable		87,600	
		Discount on Bonds Payable			57,600
		Cash			2,030,000

2. a. 2011: $71,600 = $70,000 + $1,600

   b. 2012: $143,200 = $70,000 + $70,000 + $3,200

3.

Initial carrying amount of bonds	$1,920,000
Discount amortized on December 31, 2011	1,600
Discount amortized on December 31, 2012	3,200
Carrying amount of bonds, December 31, 2012	$1,924,800

Discussion Questions

1. Describe the two distinct obligations incurred by a corporation when issuing bonds.

2. Explain the meaning of each of the following terms as they relate to a bond issue: (a) convertible, (b) callable, and (c) debenture.

3. If you asked your broker to purchase for you a 12% bond when the market interest rate for such bonds was 11%, would you expect to pay more or less than the face amount for the bond? Explain.

4. A corporation issues $18,000,000 of 10% bonds to yield interest at the rate of 8%. (a) Was the amount of cash received from the sale of the bonds greater or less than $18,000,000? (b) Identify the following terms related to the bond issue: (1) face amount, (2) market or effective rate of interest, (3) contract rate of interest, and (4) maturity amount.

5. If bonds issued by a corporation are sold at a premium, is the market rate of interest greater or less than the contract rate?

6. The following data relate to a $200,000,000, 5% bond issued for a selected semiannual interest period:

Bond carrying amount at beginning of period	$216,221,792
Interest paid during period	5,000,000
Interest expense allocable to the period	4,864,990

(a) Were the bonds issued at a discount or at a premium? (b) What is the unamortized amount of the discount or premium account at the beginning of the period? (c) What account was debited to amortize the discount or premium?

7. Bonds Payable has a balance of $3,500,000 and Discount on Bonds Payable has a balance of $125,000. If the issuing corporation redeems the bonds at 97, is there a gain or loss on the bond redemption?

8. What is a mortgage note?

9. Fleeson Company needs additional funds to purchase equipment for a new production facility and is considering either issuing bonds payable or borrowing the money from a local bank in the form of an installment note. How does an installment note differ from a bond payable?

10. How would a bond payable be reported on the balance sheet if: (a) it is payable within one year and (b) it is payable beyond one year?

Practice Exercises

Learning Objectives	Example Exercises
OBJ. 1	EE 14-1 p. 626

PE 14-1A Alternative financing plans

Baker Co. is considering the following alternative financing plans:

	Plan 1	Plan 2
Issue 5% bonds (at face value)	$3,000,000	$1,500,000
Issue preferred $4 stock, $25 par	—	2,500,000
Issue common stock, $40 par	3,000,000	2,000,000

Income tax is estimated at 40% of income.

Determine the earnings per share of common stock, assuming income before bond interest and income tax is $1,000,000.

OBJ. 1 EE 14-1 p. 626

PE 14-1B Alternative financing plans

Fly Co. is considering the following alternative financing plans:

	Plan 1	Plan 2
Issue 12% bonds (at face value)	$10,000,000	$5,000,000
Issue preferred $1.75 stock, $20 par	—	8,000,000
Issue common stock, $20 par	10,000,000	7,000,000

Income tax is estimated at 40% of income.

Determine the earnings per share of common stock, assuming income before bond interest and income tax is $2,000,000.

OBJ. 3 EE 14-2 p. 629

PE 14-2A Issuing bonds at a discount

On the first day of the fiscal year, a company issues a $4,000,000, 10%, 10-year bond that pays semiannual interest of $200,000 ($4,000,000 × 10% × ½), receiving cash of $3,760,992. Journalize the bond issuance.

OBJ. 3 EE 14-2 p. 629

PE 14-2B Issuing bonds at a discount

On the first day of the fiscal year, a company issues a $1,500,000, 9%, five-year bond that pays semiannual interest of $67,500 ($1,500,000 × 9% × ½), receiving cash of $1,334,398. Journalize the bond issuance.

OBJ. 3 EE 14-3 p. 630

PE 14-3A Discount amortization

Using the bond from Practice Exercise 14-2A, journalize the first interest payment and the amortization of the related bond discount. Round to the nearest dollar.

OBJ. 3 EE 14-3 p. 630

PE 14-3B Discount amortization

Using the bond from Practice Exercise 14-2B, journalize the first interest payment and the amortization of the related bond discount. Round to the nearest dollar.

OBJ. 3 EE 14-4 p. 631

PE 14-4A Issuing bonds at a premium

A company issues a $2,000,000, 9%, five-year bond that pays semiannual interest of $90,000 ($2,000,000 × 9% × ½), receiving cash of $2,166,332. Journalize the bond issuance.

OBJ. 3 EE 14-4 p. 631

PE 14-4B Issuing bonds at a premium

A company issues a $6,000,000, 12%, five-year bond that pays semiannual interest of $360,000 ($6,000,000 × 12% × ½), receiving cash of $6,463,304. Journalize the bond issuance.

Learning Objectives *Example Exercises*

OBJ. 3 **EE 14-5** *p. 632*

PE 14-5A Premium amortization

Using the bond from Practice Exercise 14-4A, journalize the first interest payment and the amortization of the related bond premium. Round to the nearest dollar.

OBJ. 3 **EE 14-5** *p. 632*

PE 14-5B Premium amortization

Using the bond from Practice Exercise 14-4B, journalize the first interest payment and the amortization of the related bond premium. Round to the nearest dollar.

OBJ. 3 **EE 14-6** *p. 633*

PE 14-6A Redemption of bonds payable

An $800,000 bond issue on which there is an unamortized discount of $60,000 is redeemed for $760,000. Journalize the redemption of the bonds.

OBJ. 3 **EE 14-6** *p. 633*

PE 14-6B Redemption of bonds payable

A $450,000 bond issue on which there is an unamortized premium of $25,000 is redeemed for $441,000. Journalize the redemption of the bonds.

OBJ. 4 **EE 14-7** *p. 636*

PE 14-7A Journalizing installment notes

On the first day of the fiscal year, a company issues $100,000, 8%, six-year installment notes that have annual payments of $21,632. The first note payment consists of $8,000 of interest and $13,632 of principal repayment.

a. Journalize the entry to record the issuance of the installment notes.

b. Journalize the first annual note payment.

OBJ. 4 **EE 14-7** *p. 636*

PE 14-7B Journalizing installment notes

On the first day of the fiscal year, a company issues $55,000, 9%, five-year installment notes that have annual payments of $14,140. The first note payment consists of $4,950 of interest and $9,190 of principal repayment.

a. Journalize the entry to record the issuance of the installment notes.

b. Journalize the first annual note payment.

OBJ. 6 **EE 14-8** *p. 639*

FAI

PE 14-8A Number of times interest charges are earned

Katula Company reported the following on the company's income statement in 2012 and 2011:

	2012	2011
Interest expense	$ 250,000	$ 275,000
Income before income tax expense	3,100,000	4,400,000

a. Determine the number of times interest charges were earned for 2011 and 2012. Round to one decimal place.

b. Is the number of times interest charges are earned improving or declining?

OBJ. 6 **EE 14-8** *p. 639*

FAI

PE 14-8B Number of times interest charges are earned

Marsh Products, Inc., reported the following on the company's income statement in 2012 and 2011:

	2012	2011
Interest expense	$ 420,000	$ 375,000
Income before income tax expense	4,200,000	3,000,000

a. Determine the number of times interest charges were earned for 2011 and 2012. Round to one decimal place.

b. Is the number of times interest charges are earned improving or declining?

Exercises

OBJ. 1
✔ a. $1.30

EX 14-1 Effect of financing on earnings per share

Kelton Co., which produces and sells skiing equipment, is financed as follows:

Bonds payable, 8% (issued at face amount)	$20,000,000
Preferred $2 stock, $10 par	20,000,000
Common stock, $25 par	20,000,000

Income tax is estimated at 40% of income.

Determine the earnings per share of common stock, assuming that the income before bond interest and income tax is (a) $10,000,000, (b) $12,000,000, and (c) $14,000,000.

OBJ. 1

EX 14-2 Evaluate alternative financing plans

Based on the data in Exercise 14-1, what factors other than earnings per share should be considered in evaluating these alternative financing plans?

OBJ. 1

EX 14-3 Corporate financing

The financial statements for Nike, Inc., are presented in Appendix C at the end of the text. What is the major source of financing for Nike?

OBJ. 3

EX 14-4 Bond price

Procter and Gamble's 4.7% bonds due in 2019 were reported as selling for 104.797.

Were the bonds selling at a premium or at a discount? Why is Proctor & Gamble able to sell its bonds at this price?

OBJ. 3

EX 14-5 Entries for issuing bonds

Austin Co. produces and distributes semiconductors for use by computer manufacturers. Austin Co. issued $15,000,000 of 12-year, 12% bonds on May 1 of the current year, with interest payable on May 1 and November 1. The fiscal year of the company is the calendar year. Journalize the entries to record the following selected transactions for the current year:

May 1. Issued the bonds for cash at their face amount.

Nov. 1. Paid the interest on the bonds.

Dec. 31. Recorded accrued interest for two months.

OBJ. 3
✔ b. $2,867,977

EX 14-6 Entries for issuing bonds and amortizing discount by straight-line method

On the first day of its fiscal year, Keller Company issued $25,000,000 of five-year, 10% bonds to finance its operations of producing and selling home improvement products. Interest is payable semiannually. The bonds were issued at a market (effective) interest rate of 12%, resulting in Keller Company receiving cash of $23,160,113.

a. Journalize the entries to record the following:
   1. Sale of the bonds.
   2. First semiannual interest payment. (Amortization of discount is to be recorded annually.)
   3. Second semiannual interest payment.
   4. Amortization of discount at the end of the first year, using the straight-line method. (Round to the nearest dollar.)

b. Determine the amount of the bond interest expense for the first year.

c. Explain why the company was able to issue the bonds for only $23,160,113 rather than for the face amount of $25,000,000.

OBJ. 2, 3

EX 14-7 Entries for issuing bonds and amortizing premium by straight-line method

McCool Corporation wholesales repair products to equipment manufacturers. On April 1, 2010, McCool Corporation issued $30,000,000 of five-year, 10% bonds at a market (effective) interest rate of 8%, receiving cash of $32,446,500. Interest is payable semiannually on April 1 and October 1. Journalize the entries to record the following:

a. Sale of bonds on April 1, 2012.

b. First interest payment on October 1, 2012, and amortization of bond premium for six months, using the straight-line method. (Round to the nearest dollar.)

c. Explain why the company was able to issue the bonds for $32,446,500 rather than for the face amount of $30,000,000.

OBJ. 3

EX 14-8 Entries for issuing and calling bonds; loss

Dillip Corp., a wholesaler of office equipment, issued $45,000,000 of 10-year, 10% callable bonds on March 1, 2012, with interest payable on March 1 and September 1. The fiscal year of the company is the calendar year. Journalize the entries to record the following selected transactions:

2012

Mar. 1. Issued the bonds for cash at their face amount.

Sept. 1. Paid the interest on the bonds.

2016

Sept. 1. Called the bond issue at 103, the rate provided in the bond indenture. (Omit entry for payment of interest.)

OBJ. 3

EX 14-9 Entries for issuing and calling bonds; gain

Fogel Corp. produces and sells renewable energy equipment. To finance its operations, Fogel Corp. issued $32,000,000 of 20-year, 11% callable bonds on January 1, 2012, with interest payable on January 1 and July 1. The fiscal year of the company is the calendar year. Journalize the entries to record the following selected transactions:

2012

Jan. 1. Issued the bonds for cash at their face amount.

July 1. Paid the interest on the bonds.

2018

July 1. Called the bond issue at 97, the rate provided in the bond indenture. (Omit entry for payment of interest.)

OBJ. 4

EX 14-10 Entries for issuing installment note transactions

On the first day of the fiscal year, Harris Company borrowed $65,000 by giving a 10-year, 6% installment note to Cuba Bank. The note requires annual payments of $8,832, with the first payment occurring on the last day of the fiscal year. The first payment consists of interest of $3,900 and principal repayment of $4,932.

a. Journalize the entries to record the following:
   1. Issued the installment note for cash on the first day of the fiscal year.
   2. Paid the first annual payment on the note.

b. Explain how the notes payable would be reported on the balance sheet at the end of the first year.

OBJ. 4

EX 14-11 Entries for issuing installment note transactions

On January 1, 2012, Averill Company issued a $120,000, 8-year, 10% installment note from Deacon Bank. The note requires annual payments of $22,493, beginning on December 31, 2012. Journalize the entries to record the following:

2012

Jan. 1. Issued the notes for cash at their face amount.

Dec. 31. Paid the annual payment on the note, which consisted of interest of $12,000 and principal of $10,493.

2017

Dec. 31. Paid the annual payment on the note, which consisted of interest of $5,594 and principal of $16,899.

OBJ. 4

EX 14-12 Entries for issuing installment note transactions

On January 1, 2012, Daan Company obtained a $28,000, four-year, 9% installment note from Poklers Bank. The note requires annual payments of $8,642, beginning on December 31, 2012.

a. Prepare an amortization table for this installment note, similar to the one presented in Exhibit 3.

b. Journalize the entries for the issuance of the note and the four annual note payments.

c. Describe how the annual note payment would be reported in the 2012 income statement.

OBJ. 5

EX 14-13 Reporting bonds

At the beginning of the current year, two bond issues (Putnam Industries 5% 10-year bonds and Rucker Corporation 6% five-year bonds) were outstanding. During the year, the Putnam Industries bonds were redeemed and a significant loss on the redemption of bonds was reported as an extraordinary item on the income statement. At the end of the year, the Rucker Corporation bonds were reported as a noncurrent liability. The maturity date on the Rucker Corporation bonds was early in the following year.

Identify the flaws in the reporting practices related to the two bond issues.

OBJ. 6

FAI

EX 14-14 Number of times interest charges are earned

The following data were taken from recent annual reports of Southwest Airlines, which operates a low-fare airline service to over 50 cities in the United States.

	Current Year	Preceding Year
Interest expense	$105,000,000	$69,000,000
Income before income tax	278,000,000	1,058,000

a. Determine the number of times interest charges were earned for the current and preceding years. Round to one decimal place.

b. What conclusions can you draw?

OBJ. 6

FAI

EX 14-15 Number of times interest charges are earned

Quansi, Inc., reported the following on the company's income statement in 2012 and 2011:

	2012	2011
Interest expense	$ 10,000,000	$ 12,500,000
Income before income tax expense	240,000,000	375,000,000

a. Determine the number of times interest charges were earned for 2011 and 2012. Round to one decimal place.

b. Is the number of times interest charges are earned improving or declining?

OBJ. 6

FAI

EX 14-16 Number of times interest charges are earned

Vixeron Company reported the following on the company's income statement for 2012 and 2011:

	2012	2011
Interest expense	$3,000,000	$3,000,000
Income before income tax	1,200,000	3,600,000

a. Determine the number of times interest charges were earned for 2011 and 2012. Round to one decimal place.

b. What conclusions can you draw?

Appendix 1
EX 14-17 Present value of amounts due

Determine the present value of $750,000 to be received in three years, using an interest rate of 12%, compounded annually.

a. Use the present value table in Exhibit 4.

b. Why is the present value less than the $750,000 to be received in the future?

Appendix 1
EX 14-18 Present value of an annuity

Determine the present value of $150,000 to be received at the end of each of four years, using an interest rate of 7%, compounded annually, as follows:

a. By successive computations, using the present value table in Exhibit 4.

b. By using the present value table in Exhibit 5.

c. Why is the present value of the four $150,000 cash receipts less than the $600,000 to be received in the future?

✔ $79,077,130

Appendix 1
EX 14-19 Present value of an annuity

On January 1, 2012, you win $110,000,000 in the state lottery. The $110,000,000 prize will be paid in equal installments of $11,000,000 over 10 years. The payments will be made on December 31 of each year, beginning on December 31, 2012. If the current interest rate is 6.5%, determine the present value of your winnings. Use the present value tables in Appendix A.

Appendix 1
EX 14-20 Present value of an annuity

Assume the same data as in Appendix 1 Exercise 14–19, except that the current interest rate is 13%.

Will the present value of your winnings using an interest rate of 13% be one-half the present value of your winnings using an interest rate of 6.5%? Why or why not?

Appendix 1
EX 14-21 Present value of bonds payable; discount

Baliga Co. produces and sells high-quality audio equipment. To finance its operations, Baliga Co. issued $18,000,000 of five-year, 8% bonds with interest payable semiannually at a market (effective) interest rate of 10%. Determine the present value of the bonds payable, using the present value tables in Exhibits 4 and 5. Round to the nearest dollar.

✔ $86,030,076

Appendix 1
EX 14-22 Present value of bonds payable; premium

Herbst Co. issued $80,000,000 of five-year, 13% bonds with interest payable semiannually, at a market (effective) interest rate of 11%. Determine the present value of the bonds payable, using the present value tables in Exhibits 4 and 5. Round to the nearest dollar.

✔ b. $3,396,512

Appendix 2
EX 14-23 Amortize discount by interest method

On the first day of its fiscal year, Ramsey Company issued $35,000,000 of 10-year, 9% bonds to finance its operations. Interest is payable semiannually. The bonds were issued at a market (effective) interest rate of 11%, resulting in Ramsey Company receiving cash of $30,817,399. The company uses the interest method.

a. Journalize the entries to record the following:

   1. Sale of the bonds.
   2. First semiannual interest payment, including amortization of discount. Round to the nearest dollar.

(continued)

3. Second semiannual interest payment, including amortization of discount. Round to the nearest dollar.

b. Compute the amount of the bond interest expense for the first year.

c. Explain why the company was able to issue the bonds for only $30,817,399 rather than for the face amount of $35,000,000.

✔ b. $1,879,754

Appendix 2

EX 14-24 Amortize premium by interest method

Knight Corporation wholesales auto parts to auto manufacturers. On March 1, 2012, Knight Corporation issued $17,500,000 of five-year, 12% bonds at a market (effective) interest rate of 10%, receiving cash of $18,851,252. Interest is payable semiannually. Knight Corporation's fiscal year begins on March 1. The company uses the interest method.

a. Journalize the entries to record the following:
   1. Sale of the bonds.
   2. First semiannual interest payment, including amortization of premium. Round to the nearest dollar.
   3. Second semiannual interest payment, including amortization of premium. Round to the nearest dollar.

b. Determine the bond interest expense for the first year.

c. Explain why the company was able to issue the bonds for $18,851,252 rather than for the face amount of $17,500,000.

✔ a. $53,680,315
✔ c. $295,932

Appendix 1 and Appendix 2

EX 14-25 Compute bond proceeds, amortizing premium by interest method, and interest expense

Evans Co. produces and sells motorcycle parts. On the first day of its fiscal year, Evans Co. issued $50,000,000 of five-year, 14% bonds at a market (effective) interest rate of 12%, with interest payable semiannually. Compute the following, presenting figures used in your computations.

a. The amount of cash proceeds from the sale of the bonds. Use the tables of present values in Exhibits 4 and 5. Round to the nearest dollar.

b. The amount of premium to be amortized for the first semiannual interest payment period, using the interest method. Round to the nearest dollar.

c. The amount of premium to be amortized for the second semiannual interest payment period, using the interest method. Round to the nearest dollar.

d. The amount of the bond interest expense for the first year.

✔ a. $53,530,290
✔ b. $479,469

Appendix 1 and Appendix 2

EX 14-26 Compute bond proceeds, amortizing discount by interest method, and interest expense

Lewis Co. produces and sells aviation equipment. On the first day of its fiscal year, Lewis Co. issued $60,000,000 of five-year, 10% bonds at a market (effective) interest rate of 13%, with interest payable semiannually. Compute the following, presenting figures used in your computations.

a. The amount of cash proceeds from the sale of the bonds. Use the tables of present values in Exhibits 4 and 5. Round to the nearest dollar.

b. The amount of discount to be amortized for the first semiannual interest payment period, using the interest method. Round to the nearest dollar.

c. The amount of discount to be amortized for the second semiannual interest payment period, using the interest method. Round to the nearest dollar.

d. The amount of the bond interest expense for the first year.

Problems Series A

OBJ. 1

✓ 1. Plan 3: $5.35

PR 14-1A Effect of financing on earnings per share

Three different plans for financing a $200,000,000 corporation are under consideration by its organizers. Under each of the following plans, the securities will be issued at their par or face amount, and the income tax rate is estimated at 40% of income.

	Plan 1	Plan 2	Plan 3
11% bonds	—	—	$100,000,000
Preferred 5% stock, $40 par	—	$100,000,000	50,000,000
Common stock, $25 par	$200,000,000	100,000,000	50,000,000
Total	$200,000,000	$200,000,000	$200,000,000

Instructions

1. Determine for each plan the earnings per share of common stock, assuming that the income before bond interest and income tax is $30,000,000.
2. Determine for each plan the earnings per share of common stock, assuming that the income before bond interest and income tax is $16,000,000.
3. Discuss the advantages and disadvantages of each plan.

OBJ. 2, 3

✓ 3. $1,439,986

PR 14-2A Bond discount, entries for bonds payable transactions

On July 1, 2012, Bliss Industries Inc. issued $24,000,000 of 20-year, 11% bonds at a market (effective) interest rate of 14%, receiving cash of $19,200,577. Interest on the bonds is payable semiannually on December 31 and June 30. The fiscal year of the company is the calendar year.

Instructions

1. Journalize the entry to record the amount of cash proceeds from the sale of the bonds.
2. Journalize the entries to record the following:
   a. The first semiannual interest payment on December 31, 2012, and the amortization of the bond discount, using the straight-line method. (Round to the nearest dollar.)
   b. The interest payment on June 30, 2013, and the amortization of the bond discount, using the straight-line method. (Round to the nearest dollar.)
3. Determine the total interest expense for 2012.
4. Will the bond proceeds always be less than the face amount of the bonds when the contract rate is less than the market rate of interest?
5. (Appendix 1) Compute the price of $19,200,577 received for the bonds by using the tables of present value in Appendix A at the end of the text. (Round to the nearest dollar.)

OBJ. 2, 3

✓ 3. $7,677,935

PR 14-3A Bond premium, entries for bonds payable transactions

Fabulator, Inc. produces and sells fashion clothing. On July 1, 2012, Fabulator, Inc. issued $120,000,000 of 20-year, 14% bonds at a market (effective) interest rate of 11%, receiving cash of $148,882,608. Interest on the bonds is payable semiannually on December 31 and June 30. The fiscal year of the company is the calendar year.

Instructions

1. Journalize the entry to record the amount of cash proceeds from the sale of the bonds.
2. Journalize the entries to record the following:
   a. The first semiannual interest payment on December 31, 2012, and the amortization of the bond premium, using the straight-line method. (Round to the nearest dollar.)
   b. The interest payment on June 30, 2013, and the amortization of the bond premium, using the straight-line method. (Round to the nearest dollar.)
3. Determine the total interest expense for 2012.
4. Will the bond proceeds always be greater than the face amount of the bonds when the contract rate is greater than the market rate of interest?

(continued)

5. (Appendix 1) Compute the price of $148,882,608 received for the bonds by using the tables of present value in Appendix A at the end of the text. (Round to the nearest dollar.)

OBJ. 3, 4

✓ 3. $58,236,896

PR 14-4A Entries for bonds payable and installment note transactions

The following transactions were completed by Simmons Inc., whose fiscal year is the calendar year:

2012

July 1. Issued $64,000,000 of 10-year, 12% callable bonds dated July 1, 2012, at a market (effective) rate of 14%, receiving cash of $57,219,878. Interest is payable semiannually on December 31 and June 30.

Oct. 1. Borrowed $320,000 as a five-year, 6% installment note from Ibis Bank. The note requires annual payments of $75,967, with the first payment occurring on September 30, 2013.

Dec. 31. Accrued $4,800 of interest on the installment note. The interest is payable on the date of the next installment note payment.

31. Paid the semiannual interest on the bonds. The bond discount is amortized annually in a separate journal entry.

31. Recorded bond discount amortization of $339,006, which was determined using the straight-line method.

31. Closed the interest expense account.

2013

June 30. Paid the semiannual interest on the bonds.

Sept. 30. Paid the annual payment on the note, which consisted of interest of $19,200 and principal of $56,767.

Dec. 31. Accrued $3,948 of interest on the installment note. The interest is payable on the date of the next installment note payment.

31. Paid the semiannual interest on the bonds. The bond discount is amortized annually in a separate journal entry.

31. Recorded bond discount amortization of $678,012, which was determined using the straight-line method.

31. Closed the interest expense account.

2014

June 30. Recorded the redemption of the bonds, which were called at 98. The balance in the bond discount account is $5,424,098 after payment of interest and amortization of discount have been recorded. (Record the redemption only.)

Sept. 30. Paid the second annual payment on the note, which consisted of interest of $15,794 and principal of $60,173.

Instructions

1. Journalize the entries to record the foregoing transactions.
2. Indicate the amount of the interest expense in (a) 2012 and (b) 2013.
3. Determine the carrying amount of the bonds as of December 31, 2013.

✓ 3. $1,344,040

Appendix 1 and Appendix 2
PR 14-5A Bond discount, entries for bonds payable transactions, interest method of amortizing bond discount

On July 1, 2012, Bliss Industries, Inc. issued $24,000,000 of 20-year, 11% bonds at a market (effective) interest rate of 14%, receiving cash of $19,200,577. Interest on the bonds is payable semiannually on December 31 and June 30. The fiscal year of the company is the calendar year.

Instructions

1. Journalize the entry to record the amount of cash proceeds from the sale of the bonds.
2. Journalize the entries to record the following:

   a. The first semiannual interest payment on December 31, 2012, and the amortization of the bond discount, using the interest method. (Round to the nearest dollar.)
   b. The interest payment on June 30, 2013, and the amortization of the bond discount, using the interest method. (Round to the nearest dollar.)
3. Determine the total interest expense for 2012.

✓ 3. $8,188,543

Appendix 1 and Appendix 2

PR 14-6A Bond premium, entries for bonds payable transactions, interest method of amortizing bond discount

Fabulator, Inc. produces and sells fashion clothing. On July 1, 2012, Fabulator, Inc. issued $120,000,000 of 20-year, 14% bonds at a market (effective) interest rate of 11%, receiving cash of $148,882,608. Interest on the bonds is payable semiannually on December 31 and June 30. The fiscal year of the company is the calendar year.

Instructions

1. Journalize the entry to record the amount of cash proceeds from the sale of the bonds.
2. Journalize the entries to record the following:
   a. The first semiannual interest payment on December 31, 2012, and the amortization of the bond discount, using the interest method. (Round to the nearest dollar.)
   b. The interest payment on June 30, 2013, and the amortization of the bond discount, using the interest method. (Round to the nearest dollar.)
3. Determine the total interest expense for 2012.

Problems Series B

OBJ. 1

✓ 1. Plan 3: $4.75

PR 14-1B Effect of financing on earnings per share

Three different plans for financing a $40,000,000 corporation are under consideration by its organizers. Under each of the following plans, the securities will be issued at their par or face amount, and the income tax rate is estimated at 40% of income.

	Plan 1	Plan 2	Plan 3
10% bonds	—	—	$20,000,000
Preferred $2.50 stock, $50 par	—	$20,000,000	10,000,000
Common stock, $25 par	$40,000,000	20,000,000	10,000,000
Total	$40,000,000	$40,000,000	$40,000,000

Instructions

1. Determine for each plan the earnings per share of common stock, assuming that the income before bond interest and income tax is $6,000,000.
2. Determine for each plan the earnings per share of common stock, assuming that the income before bond interest and income tax is $3,200,000.
3. Discuss the advantages and disadvantages of each plan.

OBJ. 2, 3

✓ 3. $2,100,119

PR 14-2B Bond discount, entries for bonds payable transactions

On July 1, 2012, Hallo Corporation, a wholesaler of communication equipment, issued $34,000,000 of 20-year, 12% bonds at a market (effective) interest rate of 13%, receiving cash of $31,595,241. Interest on the bonds is payable semiannually on December 31 and June 30. The fiscal year of the company is the calendar year.

Instructions

1. Journalize the entry to record the amount of cash proceeds from the sale of the bonds.
2. Journalize the entries to record the following:
   a. The first semiannual interest payment on December 31, 2012, and the amortization of the bond discount, using the straight-line method. (Round to the nearest dollar.)

(continued)

   b. The interest payment on June 30, 2013, and the amortization of the bond discount, using the straight-line method. (Round to the nearest dollar.)
3. Determine the total interest expense for 2012.
4. Will the bond proceeds always be less than the face amount of the bonds when the contract rate is less than the market rate of interest?
5. (Appendix 1) Compute the price of $31,595,241 received for the bonds by using the tables of present value in Appendix A at the end of the text. (Round to the nearest dollar.)

OBJ. 2, 3

✓ 3. $803,316

PR 14-3B Bond premium, entries for bonds payable transactions

Buddie Corporation produces and sells baseball gloves. On July 1, 2012, Buddie Corporation issued $12,500,000 of 10-year, 14% bonds at a market (effective) interest rate of 12%, receiving cash of $13,933,680. Interest on the bonds is payable semiannually on December 31 and June 30. The fiscal year of the company is the calendar year.

Instructions

1. Journalize the entry to record the amount of cash proceeds from the sale of the bonds.
2. Journalize the entries to record the following:
   a. The first semiannual interest payment on December 31, 2012, and the amortization of the bond premium, using the straight-line method. (Round to the nearest dollar.)
   b. The interest payment on June 30, 2013, and the amortization of the bond premium, using the straight-line method. (Round to the nearest dollar.)
3. Determine the total interest expense for 2012.
4. Will the bond proceeds always be greater than the face amount of the bonds when the contract rate is greater than the market rate of interest?
5. (Appendix 1) Compute the price of $13,933,680 received for the bonds by using the tables of present value in Appendix A at the end of the text. (Round to the nearest dollar.)

OBJ. 3, 4

✓ 3. $48,673,530

PR 14-4B Entries for bonds payable and installment note transactions

The following transactions were completed by Wilkerson Inc., whose fiscal year is the calendar year:

2012

July 1. Issued $42,000,000 of 10-year, 13% callable bonds dated July 1, 2012, at a market (effective) rate of 10%, receiving cash of $49,851,213. Interest is payable semiannually on December 31 and June 30.

Oct. 1. Borrowed $510,000 as a six-year, 9% installment note from Challenger Bank. The note requires annual payments of $113,689, with the first payment occurring on September 30, 2013.

Dec. 31. Accrued $11,475 of interest on the installment note. The interest is payable on the date of the next installment note payment.

31. Paid the semiannual interest on the bonds. The bond discount is amortized annually in a separate journal entry.

31. Recorded bond premium amortization of $392,561, which was determined using the straight-line method.

31. Closed the interest expense account.

2013

June 30. Paid the semiannual interest on the bonds.

Sept. 30. Paid the annual payment on the note, which consisted of interest of $45,900 and principal of $67,789.

Dec. 31. Accrued $9,950 of interest on the installment note. The interest is payable on the date of the next installment note payment.

Dec. 31. Paid the semiannual interest on the bonds. The bond discount is amortized annually in a separate journal entry.

31. Recorded bond premium amortization of $785,122, which was determined using the straight-line method.

31. Closed the interest expense account.

2014

June 30. Recorded the redemption of the bonds, which were called at 102. The balance in the bond premium account is $6,280,969 after payment of interest and amortization of premium have been recorded. (Record the redemption only.)

Sept. 30. Paid the second annual payment on the note, which consisted of interest of $39,799 and principal of $73,890.

Instructions

1. Journalize the entries to record the foregoing transactions.
2. Indicate the amount of the interest expense in (a) 2012 and (b) 2013.
3. Determine the carrying amount of the bonds as of December 31, 2013.

✓ 3. $2,053,691

Appendix 1 and Appendix 2

PR 14-5B Bond discount, entries for bonds payable transactions, interest method of amortizing bond discount

On July 1, 2012, Hallo Corporation, a wholesaler of communication equipment, issued $34,000,000 of 20-year, 12% bonds at a market (effective) interest rate of 13%, receiving cash of $31,595,241. Interest on the bonds is payable semiannually on December 31 and June 30. The fiscal year of the company is the calendar year.

Instructions

1. Journalize the entry to record the amount of cash proceeds from the sale of the bonds.
2. Journalize the entries to record the following:
   a. The first semiannual interest payment on December 31, 2012, and the amortization of the bond discount, using the interest method. (Round to the nearest dollar.)
   b. The interest payment on June 30, 2013, and the amortization of the bond discount, using the interest method. (Round to the nearest dollar.)
3. Determine the total interest expense for 2012.

✓ 3. $836,021

Appendix 1 and Appendix 2

PR 14-6B Bond premium, entries for bonds payable transactions, interest method of amortizing bond premium

Buddie Corporation produces and sells baseball gloves. On July 1, 2012, Buddie Corporation issued $12,500,000 of 10-year, 14% bonds at a market (effective) interest rate of 12%, receiving cash of $13,933,680. Interest on the bonds is payable semiannually on December 31 and June 30. The fiscal year of the company is the calendar year.

Instructions

1. Journalize the entry to record the amount of cash proceeds from the sale of the bonds.
2. Journalize the entries to record the following:
   a. The first semiannual interest payment on December 31, 2012, and the amortization of the bond premium, using the interest method. (Round to the nearest dollar.)
   b. The interest payment on June 30, 2013, and the amortization of the bond premium, using the interest method. (Round to the nearest dollar.)
3. Determine the total interest expense for 2012.

Cases & Projects

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Excel Success Special Activities

SA 14-1 Interest amortization table

On July 1, 2010 the beginning of Egan Enterprises' fiscal year, the company borrowed $15,000 from Claymore Bank by signing a 6% installment note. The note calls for annual payments of $3,561 at the end of each calendar year during the note's 5-year term.

a. Open the Excel file *SA14-1_2e.*

b. Use your spreadsheet program to prepare an amortization table for the note.

c. When you have completed the amortization table, perform a "save as," replacing the entire file name with the following:

SA14-1_2e[your first name initial]_[your last name]

SA 14-2 Interest amortization table

Amad Mosan is a realtor who is arranging for $35,000 of financing for the purchase of a new automobile. Amad is considering two financing options.

Option 1: A 7% 4-year installment note dated January 1, 2010, requiring 4 annual payments of $10,333 at the end of each of the four years.

Option 2: An 8% 6-year installment note dated January 1, 2010, requiring 6 annual payments of $7,571 at the end of each of the six years.

a. Open the Excel file *SA14-2_2e.*

b. Use your spreadsheet program to prepare an amortization table for each of the installment notes described above.

c. When you have completed the amortization tables perform a "save as," replacing the entire file name with the following:

SA14-2_2e[your first name initial]_[your last name]

SA 14-3 Interest amortization table

Use your spreadsheet program to prepare interest amortization tables for each of the installment notes listed below.

	Principal Amount	Date of Note	Annual Interest Rate	Term (Years)	Annual Payment
Note A	$9,000	01/01/2011	10%	3	$3,619
Note B	4,500	07/01/2010	5%	4	1,269
Note C	3,800	07/01/2010	9%	7	755

a. Open the Excel file *SA14-3_2e.*

b. Use your spreadsheet program to prepare an amortization table for each note.

c. When you have completed the amortization tables perform a "save as," replacing the entire file name with the following:

SA14-3_2e[your first name initial]_[your last name]

CHAPTER

15

Prouser/Reuters/Landov

Investments and Fair Value Accounting

News Corporation

You invest cash to earn more cash. For example, you could deposit cash in a bank account to earn interest. You could also invest cash in preferred or common stocks and in corporate or U.S. government notes and bonds.

Preferred and common stock can be purchased through a stock exchange, such as the **New York Stock Exchange (NYSE)**. Preferred stock is purchased primarily with the expectation of earning dividends. Common stock is purchased with the expectation of earning dividends or realizing gains from a price increase in the stock.

Corporate and U.S. government bonds can also be purchased through a bond exchange. Bonds are purchased with the primary expectation of earning interest revenue.

Companies make investments for many of the same reasons that you would as an individual. For example, **News Corporation**, a diversified media company, which produces such popular television shows as *The Simpsons* and *American Idol*, has invested $150 million of available cash in stocks and bonds. These investments are held by News Corporation for interest, dividends, and expected price increases.

Unlike most individuals, however, companies also purchase significant amounts of the outstanding common stock of other companies for strategic reasons. For example, News Corporation invested in 32% of the Hulu, an online video joint venture with other major media companies.

Investments in debt and equity securities give rise to a number of accounting issues. These issues are described and illustrated in this chapter.

Learning Objectives

After studying this chapter, you should be able to:	Example Exercises	Page
Obj. 1 Describe why companies invest in debt and equity securities.		
Why Companies Invest		
Investing Cash in Current Operations		
Investing Cash in Temporary Investments		
Investing Cash in Long-Term Investments		
Obj. 2 Describe and illustrate the accounting for debt investments.		
Accounting for Debt Investments		
Purchase of Bonds		
Interest Revenue		
Sale of Bonds	EE 15-1	670
Obj. 3 Describe and illustrate the accounting for equity investments.		
Accounting for Equity Investments		
Less Than 20% Ownership	EE 15-2	672
Between 20%–50% Ownership	EE 15-3	674
More Than 50% Ownership		
Obj. 4 Describe and illustrate valuing and reporting investments in the financial statements.		
Valuing and Reporting Investments		
Trading Securities	EE 15-4	676
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Held-to-Maturity Securities		
Summary		
Obj. 5 Describe fair value accounting and its implications for the future.		
Fair Value Accounting		
Trend to Fair Value Accounting		
Effect of Fair Value Accounting on the Financial Statements		
Obj. 6 Describe and illustrate the computation of dividend yield.		
Financial Analysis and Interpretation: Dividend Yield	EE 15-6	684

At a Glance 15 Page 686

Obj. 1 Describe why companies invest in debt and equity securities.

Why Companies Invest

Most companies generate cash from their operations. This cash can be used for the following purposes:

1. Investing in current operations
2. Investing in temporary investments to earn additional revenue
3. Investing in long-term investments in stock of other companies for strategic reasons

Investing Cash in Current Operations

Cash is often used to support the current operating activities of a company. For example, cash may be used to replace worn-out equipment or to purchase new, more efficient, and productive equipment. In addition, cash may be reinvested in the company to expand its current operations. For example, a retailer based in the northwest United States might decide to expand by opening stores in the midwest.

To support its current level of operations, a company also uses cash to pay:

1. expenses.
2. suppliers of merchandise and other assets.
3. interest to creditors.
4. dividends to stockholders.

The accounting for the use of cash in current operations has been described and illustrated in earlier chapters. For example, Chapter 10, "Fixed Assets and Intangible

Assets," illustrated the use of cash for purchasing property, plant, and equipment. In this chapter, we describe and illustrate the use of cash for investing in temporary investments and stock of other companies.

Investing Cash in Temporary Investments

A company may temporarily have excess cash that is not needed for use in its current operations. This is often the case when a company has a seasonal operating cycle. For example, a significant portion of the annual merchandise sales of a retailer occurs during the fall holiday season. As a result, retailers often experience a large increase in cash during this period, which is not needed until the spring buying season.

Instead of letting excess cash remain idle in a checking account, most companies invest their excess cash in temporary investments. In doing so, companies invest in securities such as:

1. **Debt securities**, which are notes and bonds that pay interest and have a fixed maturity date.
2. **Equity securities**, which are preferred and common stock that represent ownership in a company and do not have a fixed maturity date.

Investments in debt and equity securities, termed **Investments** or *Temporary Investments*, are reported in the Current Assets section of the balance sheet.

The primary objective of investing in temporary investments is to:

1. earn interest revenue
2. receive dividends
3. realize gains from increases in the market price of the securities.

Investments in certificates of deposit and other securities that do not normally change in value are disclosed on the balance sheet as *cash and cash equivalents*. Such investments are held primarily for their interest revenue.

Investing Cash in Long-Term Investments

A company may invest cash in the debt or equity of another company as a long-term investment. Long-term investments may be held for the same investment objectives as temporary investments. However, long-term investments often involve the purchase of a significant portion of the stock of another company. Such investments usually have a strategic purpose, such as:

1. *Reduction of costs*: When one company buys another company, the combined company may be able to reduce administrative expenses. For example, a combined company does not need two chief executive officers (CEOs) or chief financial officers (CFOs).
2. *Replacement of management*: If the purchased company has been mismanaged, the acquiring company may replace the company's management and, thus, improve operations and profits.
3. *Expansion*: The acquiring company may purchase a company because it has a complementary product line, territory, or customer base. The new combined company may be able to serve customers better than the two companies could separately.
4. *Integration*: A company may integrate operations by acquiring a supplier or customer. Acquiring a supplier may provide a more stable or uninterrupted supply of resources. Acquiring a customer may also provide a market for the company's products or services.

The Walt Disney Company purchased Marvel Entertainment in order to expand into action/adventure characters, movies, and products.

Accounting for Debt Investments

OBJ 2 Describe and illustrate the accounting for debt investments.

Debt securities include notes and bonds, issued by corporations and governmental organizations. Most companies invest excess cash in bonds as investments to earn interest revenue.

The accounting for bond investments[1] includes recording the following:

1. Purchase of bonds
2. Interest revenue
3. Sale of bonds

Purchase of Bonds

The purchase of bonds is recorded by debiting an investments account for the purchase price of the bonds, including any brokerage commissions. If the bonds are purchased between interest dates, the purchase price includes accrued interest since the last interest payment. This is because the seller has earned the accrued interest, but the buyer will receive the accrued interest when it is paid.

To illustrate, assume that Homer Company purchases $18,000 of U.S. Treasury bonds at their par value on March 17, 2012, plus accrued interest for 45 days. The bonds have an interest rate of 6%, payable on July 31 and January 31.

The entry to record the purchase of Treasury bonds is as follows:

2012 Mar.	17	Investments—U.S. Treasury Bonds		18,000	
		Interest Receivable		135	
		Cash			18,135
		Purchased $18,000, 6% Treasury bonds.			

Since Homer Company purchased the bonds on March 17, it is also purchasing the accrued interest for 45 days (January 31 to March 17) as shown in Exhibit 1. The accrued interest of $135 is computed as follows:[2]

$$\text{Accrued Interest} = \$18{,}000 \times 6\% \times (45/360) = \$135$$

The accrued interest is recorded by debiting Interest Receivable for $135. Bond Investments is debited for the purchase price of the bonds of $18,000.

Interest Revenue

On July 31, Homer Company receives a semiannual interest payment of $540 ($18,000 × 6% × 1 ½). The $540 interest includes the $135 accrued interest that Homer Company purchased with the bonds on March 17. Thus, Homer Company has earned $405 ($540 – $135) of interest revenue since purchasing the bonds as shown in Exhibit 1.

The receipt of the interest on July 31 is recorded as follows:

2012 July	31	Cash		540	
		Interest Receivable			135
		Interest Revenue			405
		Received semiannual interest.			

Homer Company's accounting period ends on December 31. Thus, an adjusting entry must be made to accrue interest for five months (August 1 to December 31) of $450 ($18,000 × 6% × $\frac{5}{12}$) as shown in Exhibit 1. The adjusting entry to record the accrued interest is as follows:

2012 Dec.	31	Interest Receivable		450	
		Interest Revenue			450
		Accrue interest.			

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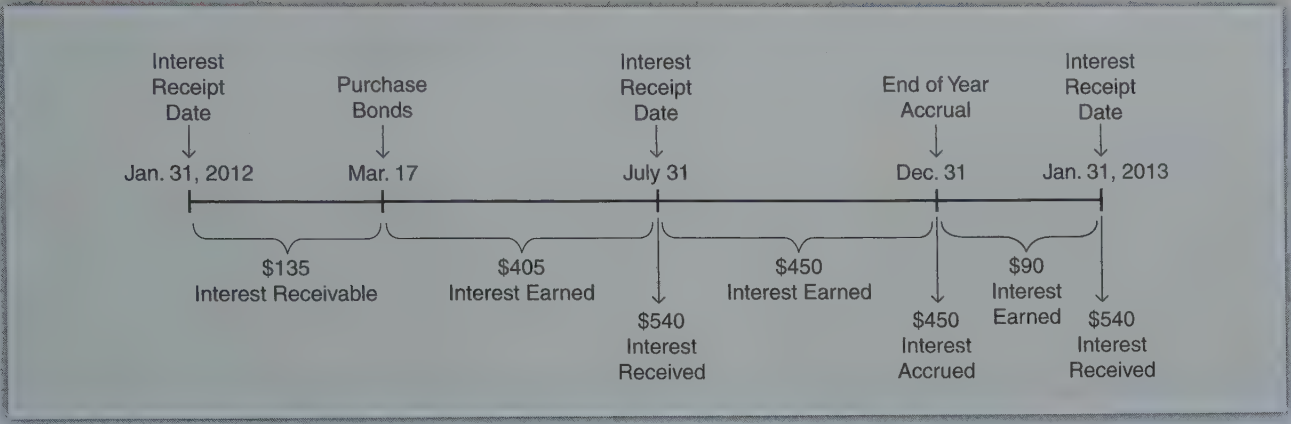
[1] Debt investments may also include installment notes and short-term notes. The basic accounting for notes is similar to bonds and, thus, is not illustrated.

[2] To simplify, a 360-day year is used to compute interest.

EXHIBIT 1 **Interest Timeline**



For the year ended December 31, 2012, Homer Company would report *Interest revenue* of $855 ($405 + $450) as part of *Other income* on its income statement.

The receipt of the semiannual interest of $540 on January 31, 2013, is recorded as follows:

2013 Jan.	31	Cash		540	
		Interest Revenue			90
		Interest Receivable			450
		Received interest on Treasury bonds.			

Sale of Bonds

The sale of a bond investment normally results in a gain or loss. If the proceeds from the sale exceed the book value (cost) of the bonds, then a gain is recorded. If the proceeds are less than the book value (cost) of the bonds, a loss is recorded.

To illustrate, on January 31, 2013, Homer Company sells the Treasury bonds at 98, which is a price equal to 98% of par value. The sale results in a loss of $360, as shown below.

Proceeds from sale	$17,640*
Less book value (cost) of the bonds	18,000
Loss on sale of bonds	$ (360)

*($18,000 × 98%)

The entry to record the sale is as follows:

2013 Jan.	31	Cash		17,640	
		Loss on Sale of Investment		360	
		Investments—U.S. Treasury Bonds			18,000
		Sale of U.S. Treasury bonds.			

There is no accrued interest upon the sale since the interest payment date is also January 31. If the sale were between interest dates, interest accrued since the last interest payment date would be added to the sale proceeds and credited to Interest Revenue. The loss on the sale of bond investments is reported as part of *Other income (loss)* on Homer Company's income statement.

Example Exercise 15-1 Bond Transactions

OBJ. 2

Journalize the entries to record the following selected bond investment transactions for Tyler Company:

1. Purchased for cash $40,000 of Tyler Company 10% bonds at 100 plus accrued interest of $320.
2. Received the first semiannual interest.
3. Sold $30,000 of the bonds at 102 plus accrued interest of $110.

Follow My Example 15-1

1.	Investments—Tyler Company Bonds	40,000	
	Interest Receivable	320	
	Cash		40,320
2.	Cash	2,000*	
	Interest Receivable		320
	Interest Revenue		1,680
	*$40,000 × 10% × ½		
3.	Cash	30,710*	
	Interest Revenue		110
	Gain on Sale of Investments		600
	Investments—Tyler Company Bonds		30,000

*Sale proceeds ($30,000 × 102%)	$30,600
Accrued interest	110
Total proceeds from sale	$30,710

Practice Exercises: **PE 15-1A, PE 15-1B**

OBJ. 3

Describe and illustrate the accounting for equity investments.

Accounting for Equity Investments

A company may invest in the preferred or common stock of another company. The company investing in another company's stock is the **investor**. The company whose stock is purchased is the **investee**.

The percent of the investee's outstanding stock purchased by the investor determines the degree of control that the investor has over the investee. This, in turn, determines the accounting method used to record the stock investment as shown in Exhibit 2.

EXHIBIT 2

Stock Investments

Percent of Outstanding Stock Owned by Investor	Degree of Control of Investor over Investee	Accounting Method
Less than 20%	No control	Cost method
Between 20% and 50%	Significant influence	Equity method
Greater than 50%	Control	Consolidation

Less Than 20% Ownership

If the investor purchases less than 20% of the outstanding stock of the investee, the investor is considered to have no control over the investee. In this case, it is assumed that the investor purchased the stock primarily to earn dividends or realize gains on price increases of the stock.

Investments of less than 20% of the investee's outstanding stock are accounted for using the **cost method**. Under the cost method, entries are recorded for the following transactions:

1. Purchase of stock
2. Receipt of dividends
3. Sale of stock

Purchase of Stock The purchase of stock is recorded at its cost. Any brokerage commissions are included as part of the cost.

To illustrate, assume that on May 1, Bart Company purchases 2,000 shares of Lisa Company common stock at $49.90 per share plus a brokerage fee of $200. The entry to record the purchase of the stock is as follows:

May	1	Investments—Lisa Company Stock		100,000	
		Cash			100,000
		Purchased 2,000 shares of Lisa Company common stock [($49.90 × 2,000 shares) + $200].			

Receipt of Dividends On July 31, Bart Company receives a dividend of $0.40 per share from Lisa Company. The entry to record the receipt of the dividend is as follows:

July	31	Cash		800	
		Dividend Revenue			800
		Received dividend on Lisa Company common stock (2,000 shares × $0.40).			

Dividend revenue is reported as part of *Other income* on Bart Company's income statement.

Sale of Stock The sale of a stock investment normally results in a gain or loss. A gain is recorded if the proceeds from the sale exceed the book value (cost) of the stock. A loss is recorded if the proceeds from the sale are less than the book value (cost).

To illustrate, on September 1, Bart Company sells 1,500 shares of Lisa Company stock for $54.50 per share, less a $160 commission. The sale results in a gain of $6,590, as shown below.

Proceeds from sale	$81,590*
Book value (cost) of the stock	75,000**
Gain on sale	$ 6,590

*($54.50 × 1,500 shares) – $160
**($100,000/2,000 shares) × 1,500 shares

The entry to record the sale is as follows:

Sept.	1	Cash		81,590	
		Gain on Sale of Investments			6,590
		Investments—Lisa Company Stock			75,000
		Sale of 1,500 shares of Lisa Company common stock.			

The gain on the sale of investments is reported as part of *Other income* on Bart Company's income statement.

Example Exercise 15-2 Stock Transactions

OBJ. 3

On September 1, 1,500 shares of Monroe Company are acquired at a price of $24 per share plus a $40 brokerage fee. On October 14, a $0.60 per share dividend was received on the Monroe Company stock. On November 11, 750 shares (half) of Monroe Company stock were sold for $20 per share, less a $45 brokerage fee. Prepare the journal entries for the original purchase, dividend, and sale.

Follow My Example 15-2

Sept. 1	Investments—Monroe Company Stock	36,040*	
	Cash		36,040
	*(1,500 shares × $24 per share) + $40		
Oct. 14	Cash	900*	
	Dividend Revenue		900
	*$0.60 per share × 1,500 shares		
Nov. 11	Cash	14,955*	
	Loss on Sale of Investments	3,065	
	Investments—Monroe Company Stock		18,020**

*(750 shares × $20) – $45
**$36,040 × ½

Practice Exercises: **PE 15-2A, PE 15-2B**

Between 20%–50% Ownership

If the investor purchases between 20% and 50% of the outstanding stock of the investee, the investor is considered to have a significant influence over the investee. In this case, it is assumed that the investor purchased the stock primarily for strategic reasons such as developing a supplier relationship.

Investments of between 20% and 50% of the investee's outstanding stock are accounted for using the **equity method**. Under the equity method, the stock is recorded initially at its cost, including any brokerage commissions. This is the same as under the cost method.

Under the equity method, the investment account is adjusted for the investor's share of the *net income* and *dividends* of the investee. These adjustments are as follows:

1. *Net Income:* The investor records its share of the net income of the investee as an increase in the investment account. Its share of any net loss is recorded as a decrease in the investment account.
2. *Dividends:* The investor's share of cash dividends received from the investee decreases the investment account.

Purchase of Stock To illustrate, assume that Simpson Inc. purchased its 40% interest in Flanders Corporation's common stock on January 2, 2012, for $350,000. The entry to record the purchase is as follows:

2012 Jan.	2	Investment in Flanders Corporation Stock		350,000	
		Cash			350,000
		Purchased 40% of Flanders Corporation stock.			

Recording Investee Net Income For the year ended December 31, 2012, Flanders Corporation reported net income of $105,000. Under the equity method, Simpson Inc. (the investor) records its share of Flanders net income as shown on the next page.

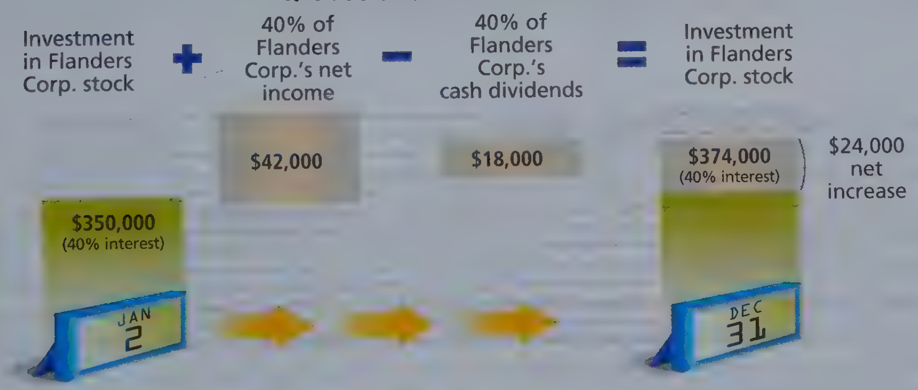
2012 Dec.	31	Investment in Flanders Corporation Stock		42,000	
		Income of Flanders Corporation			42,000
		Record 40% share of Flanders Corporation net income, $105,000 × 40%.			

Income of Flanders Corporation is reported on Simpson Inc.'s income statement. Depending on its significance, it may be reported separately or as part of *Other income*. If Flanders Corporation had a loss during the period, then the journal entry would be a debit to Loss of Flanders Corporation and a credit to the investment account.

Recording Investee Dividends During the year, Flanders declared and paid cash dividends of $45,000. Under the equity method, Simpson Inc. (the investor) records its share of Flanders dividends as follows:

2012 Dec.	31	Cash		18,000	
		Investment in Flanders Corporation Stock			18,000
		Record 40% share of Flanders Corporation dividends, $45,000 × 40%.			

The effect of recording 40% of Flanders Corporation's net income and dividends is to increase the investment account by $24,000 ($42,000 – $18,000). Thus, Investment in Flanders Corporation Stock increases from $350,000 to $374,000, as shown below.



Investment and Dividends

Under the equity method, the investment account reflects the investor's proportional changes in the net book value of the investee. For example, Flanders Corporation's net book value increased by $60,000 (net income of $105,000 less dividends of $45,000) during the year. As a result, Simpson's share of Flanders' net book value increased by $24,000 ($60,000 × 40%). Investments accounted for under the equity method are classified on the balance sheet as noncurrent assets.

Sale of Stock Under the equity method, a gain or loss is normally recorded from the sale of an investment. A gain is recorded if the proceeds exceed the *book value* of the investment. A loss is recorded if the proceeds are less than the *book value* of the investment.

To illustrate, if Simpson Inc. sold Flanders Corporation's stock on January 1, 2013, for $400,000, a gain of $26,000 would be reported, as shown below.

Proceeds from sale	$400,000
Book value of stock investment	374,000
Gain on sale	$ 26,000

The entry to record the sale is as follows:

2013 Jan.	1	Cash		400,000	
		Investment in Flanders Corporation Stock			374,000
		Gain on Sale of Flanders Corporation Stock			26,000
		Sale of Flanders Corporation stock.			

Example Exercise 15-3 Equity Method

On January 2, Olson Company acquired 35% of the outstanding stock of Bryant Company for $140,000. For the year ending December 31, Bryant Company earned income of $44,000 and paid dividends of $20,000. Prepare the entries for Olson Company for the purchase of the stock, share of Bryant income, and dividends received from Bryant Company.

Follow My Example 15-3

Jan. 2	Investment in Bryant Company Stock	140,000	
	Cash		140,000
Dec. 31	Investment in Bryant Company Stock	15,400*	
	Income of Bryant Company		15,400
	*Record 35% of Bryant income, 35% × $44,000		
Dec. 31	Cash	7,000*	
	Investment in Bryant Company Stock		7,000
	*35% × $20,000		

Practice Exercises: **PE 15-3A, PE 15-3B**

More Than 50% Ownership

If the investor purchases more than 50% of the outstanding stock of the investee, the investor is considered to have control over the investee. In this case, it is assumed that the investor purchased the stock of the investee primarily for strategic reasons.

The purchase of more than 50% ownership of the investee's stock is termed a **business combination**. Companies may combine in order to produce more efficiently, diversify product lines, expand geographically, or acquire know-how.

A corporation owning all or a majority of the voting stock of another corporation is called a **parent company**. The corporation that is controlled is called the **subsidiary company**.

Parent and subsidiary corporations often continue to maintain separate accounting records and prepare their own financial statements. In such cases, at the end of the year, the financial statements of the parent and subsidiary are combined and reported as a single company. These combined financial statements are called **consolidated financial statements**. Such statements are normally identified by adding *and Subsidiary(ies)* to the name of the parent corporation or by adding *Consolidated* to the statement title.

To the external stakeholders of the parent company, consolidated financial statements are more meaningful than separate statements for each corporation. This is because the parent company, in substance, controls the subsidiaries. The accounting for business combinations, including preparing consolidated financial statements, is decribed and illustrated in advanced accounting courses and textbooks.

Business Connection

APPLE'S ENTRANCE TO STREAMING MUSIC

Apple's iTunes is the dominant provider of music downloads. However, companies such as Pandora, Lala, and Grooveshark are challenging iTunes by providing permanent access to web songs that can be streamed live from a web browser, but cannot be downloaded onto a device. These companies can stream customized radio stations for free, or individual songs for as little as 10 cents. This compares to downloading a song from iTunes for $0.99 or more.

In late 2009, Apple acquired Lala in order to establish a presence in streaming music. Apparently, Apple believed that it was easier to acquire this technology by purchasing Lala, rather than build it in-house. While Apple has not declared its intentions, it may use Lala's technology to stream web songs through its iTunes store to iPhone®, iTouch®, and other online devices.

Source: Ethan Smith and Yakari Iwatani Kane, "Apple Acquires Lala Media," *The Wall Street Journal*, December 6, 2009.

Valuing and Reporting Investments

OBJ 4 Describe and illustrate valuing and reporting investments in the financial statements.

Debt and equity securities are *financial assets* that are often traded on public exchanges such as the New York Stock Exchange. As a result, their market value can be observed and, thus, objectively determined.

For this reason, generally accepted accounting principles (GAAP) allow some debt and equity securities to be valued in the accounting records and financial statements at their fair market values. In contrast, GAAP requires tangible assets such as property, plant, and equipment to be valued and reported at their net book values (cost less accumulated depreciation).

For purposes of valuing and reporting, debt and equity securities are classified as follows:

1. Trading securities
2. Available-for-sale securities
3. Held-to-maturity securities

Trading Securities

Trading securities are debt and equity securities that are purchased and sold to earn short-term profits from changes in their market prices. Trading securities are often held by banks, mutual funds, insurance companies, and other financial institutions.

Since trading securities are held as a short-term investment, they are reported as a current asset on the balance sheet. Trading securities are valued as a portfolio (group) of securities using the securities' fair values. **Fair value** is the market price that the company would receive for a security if it were sold. Changes in fair value of the portfolio (group) of trading securities are recognized as an **unrealized gain or loss** for the period.

SunTrust Banks Inc. holds $10 billion in trading securities as current assets.

To illustrate, assume Maggie Company purchased a portfolio of trading securities during 2012. On December 31, 2012, the cost and fair values of the securities were as follows:

Name	Number of Shares	Total Cost	Total Fair Value
Armour Company	400	$ 5,000	$ 7,200
Maven, Inc.	500	11,000	7,500
Polaris Co.	200	8,000	10,600
Total		$24,000	$25,300

The portfolio of trading securities is reported at its fair value of $25,300. An adjusting entry is made to record the increase in fair value of $1,300 ($25,300 – $24,000). In order to maintain a record of the original cost of the securities, a valuation account, called *Valuation Allowance for Trading Investments*, is debited for $1,300 and *Unrealized Gain on Trading Investments* is credited for $1,300.[3] The adjusting entry on December 31, 2012, to record the fair value of the portfolio of trading securities is shown below.

2012 Dec.	31	Valuation Allowance for Trading Investments		1,300	
		Unrealized Gain on Trading Investments			1,300
		To record increase in fair value of trading securities.			

The *Unrealized Gain on Trading Investments* is reported on the income statement. Depending on its significance, it may be reported separately or as *Other income* on the income statement. The valuation allowance is reported on the December 31, 2012, balance sheet as follows:

Maggie Company
Balance Sheet (selected items)
December 31, 2012

Current assets:		
Cash		$120,000
Trading investments (at cost)	$24,000	
Plus valuation allowance for trading investments	1,300	
Trading investments (at fair value)		25,300

If the fair value was less than the cost, then the adjustment would debit *Unrealized Loss on Trading Investments* and credit *Valuation Allowance for Trading Investments* for the difference. Unrealized Loss on Trading Investments would be reported on the income statement as Other expenses. Valuation Allowance for Trading Investments would be shown on the balance sheet as a *deduction* from Trading Investments (at cost).

Over time, the valuation allowance account is adjusted to reflect the difference between the cost and fair value of the portfolio. Thus, increases in the valuation allowance account from the beginning of the period will result in an adjustment to record an unrealized gain, similar to the journal entry illustrated above. Likewise, decreases in the valuation allowance account from the beginning of the period will result in an adjustment to record an unrealized loss.

Example Exercise 15-4 Valuing Trading Securities at Fair Value OBJ. 4

On January 1, 2012, Valuation Allowance for Trading Investments had a zero balance. On December 31, 2012, the cost of the trading securities portfolio was $79,200, and the fair value was $76,800. Prepare the December 31, 2012, adjusting journal entry to record the unrealized gain or loss on trading investments.

(*Continued*)

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[3] We assume that the valuation allowance account has a beginning balance of zero to simplify our illustrations.

Follow My Example 15-4

2012			
Dec. 31	Unrealized Loss on Trading Investments	2,400	
	Valuation Allowance for Trading Investments		2,400*
	To record decrease in fair value of trading investments.		

*Trading investments at fair value, December 31, 2012	$ 76,800
Less: Trading investments at cost, December 31, 2012	79,200
Unrealized loss on trading investments	$ (2,400)

Practice Exercises: **PE 15-4A, PE 15-4B**

Integrity, Objectivity, and Ethics in Business

LOAN LOSS WOES

During the economic crisis of 2008, many of the largest U.S. banks were accused of having provided mortgages to marginally qualified borrowers. Such loans, called "sub-prime" and "Alt-A" loans, were made to earn mortgage fees. When the borrowers were unable to pay their mortgages, the banks incurred large losses on defaulted loans. These losses were so large that the U.S. government had to provide money (TARP funds) to many banks to bail them out of their financial distress.

During the middle of the crisis, the FASB voted to provide banks more flexibility in applying fair value accounting for bank assets, such as defaulted loans. These FASB rule changes allowed banks to minimize the impact of their defaulted loan write-downs and improve their earnings. Some criticized the FASB as succumbing to political pressure, and reducing overall financial statement fairness.

Source: Ian Katz, "FASB Eases Fair-Value Rules Amid Lawmaker Pressure," *Bloomberg*, April 2, 2009.

Available-for-Sale Securities

Available-for-sale securities are debt and equity securities that are neither held for trading, held to maturity, or held for strategic reasons.

The accounting for available-for-sale securities is similar to the accounting for trading securities except for the reporting of changes in fair values. Specifically, changes in the fair values of *trading securities* are reported as an unrealized gain or loss on the income statement. In contrast, changes in the fair values of *available-for-sale securities* are reported as part of stockholders' equity and, thus, excluded from the income statement.

To illustrate, assume that Maggie Company purchased the three securities during 2012 as available-for-sale securities instead of trading securities. On December 31, 2012, the cost and fair values of the securities were as follows:

Name	Number of Shares	Total Cost	Total Fair Value
Armour Company	400	$ 5,000	$ 7,200
Maven, Inc.	500	11,000	7,500
Polaris Co.	200	8,000	10,600
Total		$24,000	$25,300

Microsoft Corporation holds over $25 billion in available-for-sale securities as current assets.

The portfolio of available-for-sale securities is reported at its fair value of $25,300. An adjusting entry is made to record the increase in fair value of $1,300 ($25,300 − $24,000). In order to maintain a record of the original cost of the securities, a valuation account, called *Valuation Allowance for Available-for-Sale Investments*, is debited for $1,300. This account is similar to the valuation account used for trading securities.

Unlike trading securities, the December 31, 2012, adjusting entry credits a stockholders' equity account instead of an income statement account.[4] The $1,300 increase in fair value is credited to *Unrealized Gain (Loss) on Available-for-Sale Investments.*

The adjusting entry on December 31, 2012, to record the fair value of the portfolio of available-for-sale securities is as follows:

2012 Dec.	31	Valuation Allowance for Available-for-Sale Investments	1,300	
		Unrealized Gain (Loss) on Available-for-Sale Investments		1,300
		To record increase in fair value of available-for-sale investments.		

A credit balance in Unrealized Gain (Loss) on Available-for-Sale Investments is added to stockholders' equity, while a debit balance is subtracted from stockholders' equity.

The valuation allowance and the unrealized gain are reported on the December 31, 2012, balance sheet as follows:

Maggie Company
Balance Sheet
December 31, 2012

Current assets:		
Cash		$120,000
Available-for-sale investments (at cost)	$24,000	
Plus valuation allowance for available-for-sale investments	1,300	
Available-for-sale investments (at fair value)		25,300
Stockholders' equity:		
Common stock		$ 10,000
Paid-in capital in excess of par value		150,000
Retained earnings		250,000
Unrealized gain (loss) on available-for-sale investments		1,300
Total stockholders' equity		$411,300

Equal

As shown above, Unrealized Gain (Loss) on Available-for-Sale Investments is reported as an addition to stockholders' equity. In future years, the cumulative effects of unrealized gains and losses are reported in this account. Since 2012 was the first year that Maggie Company purchased available-for-sale securities, the unrealized gain is reported as the balance of *Unrealized Gain (Loss) on Available-for-Sale Investments.* This treatment is supported under the theory that available-for-sale securities will be held longer than trading securities, so changes in fair value over time have a greater opportunity to cancel out. Thus, these changes are not reported on the income statement as is the case with trading securities.

If the fair value was less than the cost, then the adjustment would debit Unrealized Gain (Loss) on Available-for-Sale Investments and credit Valuation Allowance for Available-for-Sale Investments for the difference. Unrealized Gain (Loss) on Trading Investments would be reported in the Stockholders' Equity section as

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[4] This is a rare exception to the rule that every adjusting entry must affect an income statement and a balance sheet account.

a negative item. Valuation Allowance for Available-for-Sale Investments would be shown on the balance sheet as a deduction from Available-for-Sale Investments (at cost).

Over time, the valuation allowance account is adjusted to reflect the difference between the cost and fair value of the portfolio. Thus, increases in the valuation allowance from the beginning of the period will result in an adjustment to record an increase in the valuation and unrealized gain (loss) accounts, similar to the journal entry illustrated earlier. Likewise, decreases in valuation allowance from the beginning of the period will result in an adjustment to record decreases in the valuation and unrealized gain (loss) accounts.

Example Exercise 15-5 Valuing Available-for-Sale Securities at Fair Value

OBJ. 4

On January 1, 2012, Valuation Allowance for Available-for-Sale Investments had a zero balance. On December 31, 2012, the cost of the available-for-sale securities was $45,700, and the fair value was $50,000.

Prepare the adjusting entry to record the unrealized gain or loss for available-for-sale investments on December 31, 2012.

Follow My Example 15-5

2012			
Dec. 31	Valuation Allowance for Available-for-Sale Investments	4,300*	
	Unrealized Gain (Loss) on Available-for-Sale Investments		4,300
	To record increase in fair value of available-for-sale securities.		

*Available-for-sale investments at fair value, December 31, 2012	$50,000
Less: Available-for-sale investments at cost, December 31, 2012	45,700
Unrealized gain (loss) on available-for-sale investments	$ 4,300

Practice Exercises: **PE 15-5A, PE 15-5B**

Held-to-Maturity Securities

Held-to-maturity securities are debt investments, such as notes or bonds, that a company intends to hold until their maturity date. Held-to-maturity securities are primarily purchased to earn interest revenue.

If a held-to-maturity security will mature within a year, it is reported as a current asset on the balance sheet. Held-to-maturity securities maturing beyond a year are reported as noncurrent assets.

Only securities with maturity dates such as corporate notes and bonds are classified as held-to-maturity securities. Equity securities are not held-to-maturity securities because they have no maturity date.

Held-to-maturity bond investments are recorded at their cost, including any brokerage commissions, as illustrated earlier in this chapter. If the interest rate on the bonds differs from the market rate of interest, the bonds may be purchased at a premium or discount. In such cases, the premium or discount is amortized over the life of the bonds.

Held-to-maturity bond investments are reported on the balance sheet at their amortized cost. The accounting for held-to-maturity investments, including premium and discount amortization, is described in advanced accounting texts.

Summary

Exhibit 3 summarizes the valuation and balance sheet reporting of trading, available-for-sale, and held-to-maturity securities.

EXHIBIT 3

Summary of Valuing and Reporting of Investments

	Trading Securities	Available-for-Sale Securities	Held-to-Maturity Securities
Valued at:	**Fair Value**	**Fair Value**	**Amortized Cost**
Changes in valuation are reported as:	Unrealized gain or loss is reported on income statement as Other income (loss).	Accumulated unrealized gain or loss is reported in stockholders' equity on the balance sheet.	Premium or discount amortization is reported as part of interest revenue on the income statement.
Reported on the balance sheet as:	Cost of investments plus or minus valuation allowance.	Cost of investments plus or minus valuation allowance.	Amortized cost of investment.
Classified on balance sheet as:	A current asset.	Either as a current or noncurrent asset, depending on management's intent.	Either as a current or noncurrent asset, depending on remaining term to maturity.

Common stock investments in trading and available-for-sale securities are normally less than 20% of the outstanding common stock of the investee. The portfolios are reported at fair value using the valuation allowance account, while the individual securities are accounted for using the cost method. Investments between 20% and 50% of the outstanding common stock of the investee are accounted for using the equity method illustrated earlier in this chapter. Equity method investments are classified as noncurrent assets on the balance sheet. Moreover, such investments are permitted to be valued using fair values. To simplify, it is assumed that the investor does not elect this option.

The balance sheet reporting for the investments of Mornin' Joe is shown below.

Mornin' Joe
Balance Sheet
December 31, 2012

Assets			
Current assets:			
Cash and cash equivalents		$235,000	
Trading investments (at cost)	$420,000		
Plus valuation allowance for trading investments	45,000	465,000	
Accounts receivable	$305,000		
Less allowance for doubtful accounts	12,300	292,700	
Merchandise inventory—at lower of cost (first-in, first-out method) or market		120,000	
Prepaid insurance		24,000	
Total current assets			$1,136,700
Investments:			
Investment in AM Coffee (equity method)			565,000
Property, plant, and equipment:			

Mornin' Joe invests in trading securities and does not have investments in held-to-maturity or available-for-sale securities. Mornin' Joe also owns 40% of AM Coffee Corporation, which is accounted for using the equity method. Mornin' Joe intends to keep its investment in AM Coffee indefinitely for strategic reasons; thus, its investment in AM Coffee is classified as a noncurrent asset. Such investments are normally reported before property, plant, and equipment.

Mornin' Joe reported an Unrealized Gain on Trading Investments of $5,000 and Equity Income in AM Coffee of $57,000 in the Other income and expense section of its income statement, as shown below.

Mornin' Joe
Income Statement
For the Year Ended December 31, 2012

Revenue from sales:			
Sales		$5,450,000	
Less: Sales returns and allowances	$26,500		
Sales discounts	21,400	47,900	
Net sales			$5,402,100
Cost of merchandise sold			2,160,000
Gross profit			$3,242,100
Total operating expenses			2,608,700
Income from operations			$ 633,400
Other income and expense:			
Interest revenue		$ 18,000	
Interest expense		(136,000)	
Loss on disposal of fixed asset		(23,000)	
Unrealized gain on trading investments		5,000	
Equity income in AM Coffee		57,000	(79,000)
Income before income taxes			$ 554,400
Income tax expense			132,800
Net income			$ 421,600

Business Connection

WARREN BUFFETT: THE SAGE OF OMAHA

Beginning in 1962, Warren Buffett, one of the world's wealthiest and most successful investors, began buying shares of Berkshire Hathaway. He eventually took control of the company and transformed it from a textile manufacturing company into an investment holding company. Today, Berkshire Hathaway holds over $125 billion in cash and cash equivalents, equity securities, and debt securities. Berkshire's largest holdings include The Coca-Cola Company, American Express, Wells Fargo, and Procter & Gamble. Berkshire Class A common stock trades near $115,000 per share, the highest priced share on the New York Stock Exchange. These shares would have given an investor a nearly 1,400% return since 1990.

Buffett compares his investment style to hitting a baseball: "Ted Williams, one of the greatest hitters in the game, stated, 'my argument is, to be a good hitter, you've got to get a good ball to hit. It's the first rule of the book. If I have to bite at stuff that is out of my happy zone, I'm not a .344 hitter. I might only be a .250 hitter.'" Buffett states, "Charlie (Buffett's partner) and I agree and will try to wait for (investment) opportunities that are well within our 'happy zone.'"[5] One of Buffet's recent "happy zone" investments was the acquisition of Burlington Northern Santa Fe Railroad for $34 billion.

Warren Buffett as the CEO of Berkshire Hathaway earns a salary of only $100,000 per year, which is the lowest CEO salary for a company of its size in the United States. However, he personally owns approximately 38% of the company, making him worth over $40 billion. What will Buffett do with this wealth? He has decided to give nearly all of it to philanthropic causes through the Bill and Melinda Gates Foundation.

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[5] Warren E. Buffett, *The Essays of Warren Buffett: Lessons for Corporate America*, edited by Lawrence A. Cunningham, p. 234.

OBJ. 5 Describe fair value accounting and its implications for the future.

Fair Value Accounting

Fair value is the price that would be received for selling an asset or paying off a liability. Fair value assumes that the asset is sold or the liability paid off under *normal* rather than under distressed conditions.

As illustrated earlier, generally accepted accounting principles require the use of fair values for valuing and reporting debt and equity securities held as trading or available-for-sale investments. In addition, accounts receivable is recorded and reported at an amount that approximates its fair value. Likewise, accounts payable are recorded and reported at approximately their fair value.

In contrast, many assets and liabilities are recorded and reported at amounts that differ significantly from their fair values. For example, when equipment or other property, plant, and equipment assets are purchased, they are initially recorded at their fair values. That is, they are recorded at their purchase price, called *historical cost*, and depreciated over its useful life. As a result, the book value of property, plant, and equipment normally differs significantly from its fair value. Likewise, held-to-maturity securities are valued at their amortized cost rather than at their fair values.

Trend to Fair Value Accounting

A current trend is for the Financial Accounting Standards Board (FASB) and other accounting regulators to adopt accounting principles using fair values for valuing and reporting assets and liabilities. Factors contributing to this trend include the following:

1. Current generally accepted accounting principles are a hybrid of varying measurement methods that often conflict with one another. For example, property, plant, and equipment are normally reported at their depreciated book values. However, GAAP require that if a fixed asset value is *impaired*, that it be written down to its fair value. Such conflicting accounting principles could confuse users of financial statements.
2. A greater percentage of the total assets of many companies consists of financial assets such as receivables and securities. Fair values for such assets can often be readily obtained from stock market quotations or computed using current interest rates and present values. Likewise, many liabilities can be readily valued using market quotations or current interest rates and present values.
3. The world economy has compelled accounting regulators to adopt a worldwide set of accounting principles and standards. *International Financial Reporting Standards (IFRSs)* are issued by the International Accounting Standards Board *(IASB)* and are used by the European Economic Union (EU). As a result, the FASB is under increasing pressure to conform U.S. accounting standards to international standards. One area where differences exist is in the use of fair values, which are more often used by International Financial Reporting Standards.

IFRS IFRS
See Appendix D for more information

While there is an increasing trend to fair value accounting, using fair values has several potential disadvantages. Some of these disadvantages include the following:

1. Fair values may not be readily obtainable for some assets or liabilities. As a result, accounting reports may become more subjective and less reliable. For example, fair values (market quotations) are normally available for trading and available-for-sale securities. However, fair values may not be as available for assets such as property, plant, and equipment or intangible assets such as goodwill.
2. Fair values make it more difficult to compare companies if companies use different methods of determining (measuring) fair values. This would be especially true for assets and liabilities for which fair values are not readily available.
3. Using fair values could result in more fluctuations in accounting reports because fair values normally change from year to year. Such volatility may confuse users of the financial statements. It may also make it more difficult for users to determine current operating trends and to predict future trends.

Effect of Fair Value Accounting on the Financial Statements

The use of fair values for valuing assets and liabilities affects the financial statements. Specifically, the balance sheet and income statement could be affected.

Balance Sheet When an asset or a liability is reported at its fair value, any difference between the asset's original cost or prior period's fair value must be recorded. As we illustrated for trading and available-for-sale securities, one method for doing this is to use a valuation allowance. The account, *Valuation Allowance for Trading Investments*, was used earlier in this chapter to adjust trading securities to their fair values.

Available-for-sale securities are recorded at fair value. Changes in their fair values are not recognized on the income statement, but are included as part of stockholders' equity.

Income Statement Instead of recording the unrealized gain or loss on changes in fair values as part of stockholders' equity, the unrealized gains or losses may be reported on the income statement. This method was illustrated earlier in this chapter for *trading* securities.

As shown above, differences exist as to how to best report changes in fair values—that is, whether to report gains or losses on fair values on the income statement or the balance sheet.

In an attempt to bridge these differences, the FASB introduced the concepts of *comprehensive income* and *accumulated other comprehensive income*. These concepts are described in the appendix to this chapter.

Financial Analysis and Interpretation: Dividend Yield

OBJ. 6 Describe and illustrate the computation of dividend yield.

The **dividend yield** measures the rate of return to stockholders based on cash dividends. Dividend is most often computed for common stock because preferred stock has a stated dividend rate. In contrast, the cash dividends paid on common stock normally varies with the profitability of the corporation.

The dividend yield is computed as follows:

$$\text{Dividend Yield} = \frac{\text{Dividends per Share of Common Stock}}{\text{Market Price per Share of Common Stock}}$$

To illustrate, the market price of News Corporation was \$15.50 on February 12, 2010. During the preceding year, News Corporation had paid dividends of \$0.12 per share. Thus, the dividend yield of News Corporation's common stock is computed as follows:

$$\text{Dividend Yield} = \frac{\text{Dividends per Share of Common Stock}}{\text{Market Price per Share of Common Stock}} = \frac{\$0.12}{\$15.50} = 0.77\%$$

News Corporation pays a dividend yield of less than 1%. The dividend yield is first a function of a company's profitability, or ability to pay a dividend. For example, many banks nearly eliminated their dividends during the banking crisis of the late 2000s because they had significant losses. News Corporation has sufficient profitability to pay a dividend. Secondly, a company's dividend yield is a function of management's alternative use of funds. If a company has sufficient growth opportunities, funds may be directed toward internal investment, rather than toward paying dividends. This would explain News Corporation's small dividend yield.

The dividend yield will vary from day to day, because the market price of a corporation's stock varies day to day. Current dividend yields are provided with newspaper listings of market prices and most Internet quotation services, such as from either Yahoo's or Google's Finance Web site.

Recent dividend yields for some selected companies are as follows:

Company	Dividend Yield (%)
Apple	None
Best Buy	1.57
Coca-Cola Company	3.04
Duke Energy	5.94
Hewlett-Packard	0.48
Microsoft	1.86
Starbucks	None
Verizon Communications	6.57

As can be seen, the dividend yield varies widely across firms. Growth firms tend to retain their earnings to fund future growth. Thus, Apple and Starbucks pay no dividends, and Hewlett-Packard has a very small dividend. Common stockholders of these companies expect to earn most of their return from stock price appreciation. In contrast, Duke Energy and Verizon Communications are regulated utilities that provide a return to common stockholders mostly through their dividend. Best Buy, Coca-Cola, and Microsoft provide a mix of dividend and expected stock price appreciation to their common stockholders.

Example Exercise 15-6 Dividend Yield

OBJ 6

On March 11, 2012, Sheldon Corporation had a market price per share of common stock of $58. For the previous year, Sheldon paid an annual dividend of $2.90. Compute the dividend yield for Sheldon Corporation.

Follow My Example 15-6

$$\text{Dividend Yield} = \frac{\text{Dividends per Share of Common Stock}}{\text{Market Price per Share of Common Stock}}$$

$$\text{Dividend Yield} = \frac{\$2.90}{\$58} = 0.05, \text{ or } 5\%$$

Practice Exercises: **PE 15-6A, PE 15-6B**

APPENDIX

Comprehensive Income

Comprehensive income is defined as all changes in stockholders' equity during a period, except those resulting from dividends and stockholders' investments. Comprehensive income is computed by adding or subtracting *other comprehensive income* from net income as follows:

Net income	$XXX
Other comprehensive income	XXX
Comprehensive income	$XXX

Other comprehensive income items include unrealized gains and losses on available-for-sale securities as well as other items such as foreign currency and pension

liability adjustments. The *cumulative* effect of other comprehensive income is reported on the balance sheet, as **accumulated other comprehensive income**.

Companies may report comprehensive income in the financial statements as follows:

1. On the income statement
2. In a separate statement of comprehensive income
3. In the statement of stockholders' equity

Companies may use terms other than comprehensive income, such as *total non-owner changes in equity*.

In the earlier illustration, Maggie Company had reported an unrealized gain on available-for-sale investments of $1,300. This unrealized gain would be reported in the Stockholders' Equity section of its 2012 balance sheet as follows:

Maggie Company
Balance Sheet
December 31, 2012

Stockholders' equity:	
Common stock	$ 10,000
Paid-in capital in excess of par value	150,000
Retained earnings	250,000
Unrealized gain (loss) on available-for-sale investments	1,300
Total stockholders' equity	$411,300

Alternatively, Maggie Company could have reported the unrealized gain as part of accumulated other comprehensive income as follows:

Maggie Company
Balance Sheet
December 31, 2012

Stockholders' equity:	
Common stock	$ 10,000
Paid-in capital in excess of par value	150,000
Retained earnings	250,000
Accumulated other comprehensive income:	
Unrealized gain on available-for-sale investments	1,300
Total stockholders' equity	$411,300

At a Glance 15

OBJ. 1 Describe why companies invest in debt and equity securities.

Key Points Cash can be used to (1) invest in current operations, (2) invest to earn additional revenue in marketable securities, or (3) invest in marketable securities for strategic reasons.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the ways excess cash is used by a business.		
• Describe the purpose of temporary investments.		
• Describe the strategic purpose of long-term investments.		

OBJ. 2 Describe and illustrate the accounting for debt investments.

Key Points The accounting for debt investments includes recording the purchase, interest revenue, and sale of the debt. Both the purchase and sale date may include accrued interest.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare journal entries to record the purchase of a debt investment, including accrued interest.	EE15-1	PE15-1A, 15-1B
• Prepare journal entries for interest revenue from debt investments.	EE15-1	PE15-1A, 15-1B
• Prepare journal entries to record the sale of a debt investment at a gain or loss.	EE15-1	PE15-1A, 15-1B

OBJ. 3 Describe and illustrate the accounting for equity investments.

Key Points The accounting for equity investments differs depending on the degree of control. Accounting for investments of less than 20% of the outstanding stock (no control) of the investee includes recording the purchase of stock, receipt of dividends, and sale of stock at a gain or loss. Influential investments of 20%–50% of the outstanding stock of an investee are accounted for under the *equity method*. An investment for more than 50% of the outstanding stock of an investee is treated as a *business combination* and accounted for using *consolidated financial statements*.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the accounting for less than 20%, 20%–50%, and greater than 50% investments.		
• Prepare journal entries to record the purchase of a stock investment.	EE15-2	PE15-2A, 15-2B
• Prepare journal entries for receipt of dividends.	EE15-2	PE15-2A, 15-2B
• Prepare journal entries for the sale of a stock investment at a gain or loss.	EE15-2	PE15-2A, 15-2B
• Prepare journal entries for the equity earnings of an equity method investee.	EE15-3	PE15-3A, 15-3B
• Prepare journal entries for the dividends received from an equity method investee.	EE15-3	PE15-3A, 15-3B
• Describe a business combination, parent company, and subsidiary company.		
• Describe consolidated financial statements.		

OBJ. 4 Describe and illustrate valuing and reporting investments in the financial statements.

Key Points Debt and equity securities are classified as (1) trading securities, (2) available-for-sale securities, and (3) held-to-maturity securities for reporting and valuation purposes. *Trading securities* are valued at *fair value*, with unrealized gains and losses reported on the income statement. *Available-for-sale securities* are debt and equity securities that are not classified as trading or held-to-maturity. Available-for-sale securities are reported at fair value with unrealized gains or losses reported in the Stockholders' Equity section of the balance sheet. *Held-to-maturity* investments are debt securities that are intended to be held until their maturity date. Held-to-maturity debt investments are valued at amortized cost.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe trading securities, held-to-maturity securities, and available-for-sale securities.		
• Prepare journal entries to record the change in the fair value of a trading security portfolio.	**EE15-4**	**PE15-4A, 15-4B**
• Describe and illustrate the reporting of trading securities on the balance sheet.		
• Prepare journal entries to record the change in fair value of an available-for-sale security portfolio.	**EE15-5**	**PE15-5A, 15-5B**
• Describe and illustrate the reporting of available-for-sale securities on the balance sheet.		
• Describe the accounting for held-to-maturity debt securities.		

OBJ. 5 Describe fair value accounting and its implications for the future.

Key Points There is a trend toward fair value accounting in generally accepted accounting principles (GAAP). Fair value provides relevance at the sacrifice of objectivity for assets without established market prices.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the reasons why there is a trend toward fair value accounting.		
• Describe the disadvantages of fair value accounting.		
• Describe how fair value accounting impacts the balance sheet and income statement.		
• Describe the future of fair value accounting.		

OBJ. 6 Describe and illustrate the computation of dividend yield.

Key Points The dividend yield measures the cash return from common dividends as a percent of the market price. The ratio is computed as dividends per share of common stock divided by the market price per share of common stock.

Learning Outcomes	Example Exercises	Practice Exercises
• Compute dividend yield.	**EE15-6**	**PE15-6A, 15-6B**
• Describe how dividend yield measures the return to stockholders from dividends.		

Key Terms

accumulated other comprehensive income (685)
available-for-sale securities (677)
business combination (674)
comprehensive income (684)
consolidated financial statements (674)
cost method (671)
debt securities (667)
dividend yield (683)
equity method (672)
equity securities (667)
fair value (675)
held-to-maturity securities (679)
investee (670)
investments (667)
investor (670)
other comprehensive income (684)
parent company (674)
subsidiary company (674)
trading securities (675)
unrealized gain or loss (675)

Illustrative Problem

The following selected investment transactions were completed by Rosewell Company during 2012, its first year of operations:

2012

Jan. 11. Purchased 800 shares of Bryan Company stock as an available-for-sale security at $23 per share plus an $80 brokerage commission.

Feb. 6. Purchased $40,000 of 8% U.S. Treasury bonds at par value plus accrued interest for 36 days. The bonds pay interest on January 1 and July 1. The bonds were classified as held-to-maturity securities.

Mar. 3. Purchased 1,900 shares of Cohen Company stock as a trading security at $48 per share plus a $152 brokerage commission.

Apr. 5. Purchased 2,400 shares of Lyons Inc. stock as an available-for-sale security at $68 per share plus a $120 brokerage commission.

May 12. Purchased 200,000 shares of Myers Company at $37 per share plus an $8,000 brokerage commission. Myers Company has 800,000 common shares issued and outstanding. The equity method was used for this investment.

July 1. Received semiannual interest on bonds purchased on February 6.

Aug. 29. Sold 1,200 shares of Cohen Company stock at $61 per share less a $90 brokerage commission.

Oct. 5. Received an $0.80-per-share dividend on Bryan Company stock.

Nov. 11. Received a $1.10-per-share dividend on Myers Company stock.

16. Purchased 3,000 shares of Morningside Company stock as a trading security for $52 per share plus a $150 brokerage commission.

Dec. 31. Accrued interest on February 6 bonds.

31. Myers Company earned $1,200,000 during the year. Rosewell recorded its share of Myers Company earnings using the equity method.

31. Prepared adjusting entries for the portfolios of trading and available-for-sale securities based upon the following fair values (stock prices):

Bryan Company	$21
Cohen Company	43
Lyons Inc.	88
Myers Company	40
Morningside Company	45

Instructions

1. Journalize the preceding transactions.
2. Prepare the balance sheet disclosure for Rosewell Company's investments on December 31, 2012. Assume held-to-maturity investments are classified as noncurrent assets.

Solution

1.

2012 Jan.	11	Available-for-Sale Investments—Bryan Company		18,480*	
		Cash			18,480
		*(800 shares × $23 per share) + $80			

Feb.	6	Investments—U.S. Treasury Bonds		40,000	
		Interest Receivable		320*	
		Cash			40,320
		*$40,000 × 8% × (36 days/360 days)			

Mar.	3	Trading Investments—Cohen Company		91,352*	
		Cash			91,352
		*(1,900 shares × $48 per share) + $152			

Apr.	5	Available-for-Sale Investments—Lyons Inc.		163,320*	
		Cash			163,320
		*(2,400 shares × $68 per share) + $120			

May	12	Investment in Myers Company		7,408,000*	
		Cash			7,408,000
		*(200,000 shares × $37 per share) + $8,000			

July	1	Cash		1,600*	
		Interest Receivable			320
		Interest Revenue			1,280
		*$40,000 × 8% × ½			

Aug.	29	Cash		73,110*	
		Trading Investments—Cohen Company			57,696**
		Gain on Sale of Investments			15,414
		*(1,200 shares × $61 per share) – $90			
		**1,200 shares × ($91,352/1,900 shares)			

2012 Oct.	5	Cash		640	
		Dividend Revenue			640
		*800 shares × $0.80 per share			

Nov.	11	Cash		220,000	
		Investment in Myers Company Stock			220,000
		*200,000 shares × $1.10 per share			

Nov.	16	Trading Investments—Morningside Company		156,150*	
		Cash			156,150
		*(3,000 shares × $52 per share) + $150			

Dec.	31	Interest Receivable		1,600	
		Interest Revenue			1,600
		Accrue interest, $40,000 × 8% × ½.			

Dec.	31	Investment in Myers Company Stock		300,000	
		Income of Myers Company			300,000
		Record equity income, $1,200,000 × (200,000 shares/800,000 shares).			

Dec.	31	Unrealized Loss on Trading Investments		24,706	
		Valuation Allowance for Trading Investments			24,706
		Record decease in fair value of trading investments, $165,100 –$189,806.			

Name	Number of Shares	Total Cost	Total Fair Value
Cohen Company	700	$ 33,656	$ 30,100*
Morningside Company	3,000	156,150	135,000**
Total		$189,806	$165,100

*700 shares × $43 per share
**3,000 shares × $45 per share

Note: Myers Company is valued using the equity method; thus, the fair value is not used.

Dec.	31	Valuation Allowance for Available-for-Sale Investments		46,200	
		Unrealized Gain (Loss) on Available-for-Sale Investments			46,200
		Record increase in fair value of available-for-sale investments, $228,000 – $181,800.			

Name	Number of Shares	Total Cost	Total Fair Value
Bryan Company	800	$ 18,480	$ 16,800*
Lyons Inc.	2,400	163,320	211,200**
Total		$181,800	$228,000

*800 shares × $21 per share
**2,400 shares × $88 per share

2.

Rosewell Company
Balance Sheet (Selected)
December 31, 2012

Current assets:		
Cash		$ XXX,XXX
Trading investments (at cost)	$189,806	
Less valuation allowance for trading investments	24,706	
Trading investments at fair value		165,100
Available-for-sale investments (at cost)	$181,800	
Plus valuation allowance for available-for-sale investments	46,200	
Available-for-sale investments at fair value		228,000
Noncurrent investments:		
Held-to-maturity investments		$ 40,000
Investments in Myers Company (equity method)		7,488,000
Stockholders' equity:		
Common stock		$ XX,XXX
Paid-in capital in excess of par value		XXX,XXX
Retained earnings		XXX,XXX
Plus unrealized gain (loss) on available-for-sale investments		46,200
Total stockholders' equity		$ XXX,XXX

Discussion Questions

1. Why might a business invest in another company's stock?
2. Why would there be a gain or loss on the sale of a bond investment?
3. When is using the cost method the appropriate accounting for equity investments?
4. How does the accounting for a dividend received differ between the cost method and the equity method?
5. If an investor owns more than 50% of an investee, how is this treated on the investor's financial statements?
6. What is the major difference in the accounting for a portfolio of trading securities and a portfolio of available-for-sale securities?
7. If Valuation Allowance for Trading Investments has a credit balance, how is it treated on the balance sheet?
8. How would a debit balance in Unrealized Gain (Loss) on Available-for-Sale Investments be disclosed in the financial statements?
9. What is the evidence of the trend toward fair value accounting?
10. What are some potential disadvantages of fair value accounting?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 2 **EE 15-1** *p. 670*

PE 15-1A Bond transactions

Journalize the entries to record the following selected bond investment transactions for Capital Trust:

a. Purchased for cash $250,000 of Belmont City 4% bonds at 100 plus accrued interest of $1,500.

b. Received first semiannual interest.

c. Sold $80,000 of the bonds at 97 plus accrued interest of $500.

OBJ. 2 **EE 15-1** *p. 670*

PE 15-1B Bond transactions

Journalize the entries to record the following selected bond investment transactions for Jennings Products:

a. Purchased for cash $40,000 of Tech Grove, Inc. 6% bonds at 100 plus accrued interest of $850.

b. Received first semiannual interest.

c. Sold $15,000 of the bonds at 102 plus accrued interest of $150.

OBJ. 3 **EE 15-2** *p. 672*

PE 15-2A Stock transactions

On February 12, 5,000 shares of Mid-Ex Company are acquired at a price of $24 per share plus a $200 brokerage fee. On April 22, a $0.36-per-share dividend was received on the Mid-Ex Company stock. On May 10, 4,000 shares of the Mid-Ex Company stock were sold for $31 per share less a $160 brokerage fee. Prepare the journal entries for the original purchase, dividend, and sale.

OBJ. 3 **EE 15-2** *p. 672*

PE 15-2B Stock transactions

On August 15, 1,600 shares of Birch Company are acquired at a price of $44 per share plus a $160 brokerage fee. On September 10, a $0.75-per-share dividend was received on the Birch Company stock. On October 5, 500 shares of the Birch Company stock were sold for $35 per share less a $50 brokerage fee. Prepare the journal entries for the original purchase, dividend, and sale.

OBJ. 3 **EE 15-3** *p. 674*

PE 15-3A Equity method

On January 2, THT Company acquired 40% of the outstanding stock of First Alert Company for $155,000. For the year ending December 31, First Alert Company earned income of $42,000 and paid dividends of $12,000. Prepare the entries for THT Company for the purchase of the stock, share of First Alert income, and dividends received from First Alert Company.

OBJ. 3 **EE 15-3** *p. 674*

PE 15-3B Equity method

On January 2, Bassett Company acquired 30% of the outstanding stock of Nassim Company for $400,000. For the year ending December 31, Nassim Company earned income of $110,000 and paid dividends of $46,000. Prepare the entries for Bassett Company for the purchase of the stock, share of Nassim income, and dividends received from Nassim Company.

Learning Objectives *Example Exercises*

OBJ. 4 EE 15-4 *p. 676*

PE 15-4A Valuing trading securities at fair value

On January 1, 2012, Valuation Allowance for Trading Investments had a zero balance. On December 31, 2012, the cost of the trading securities portfolio was $105,800 and the fair value was $101,600. Prepare the December 31, 2012, adjusting journal entry to record the unrealized gain or loss on trading investments.

OBJ. 4 EE 15-4 *p. 676*

PE 15-4B Valuing trading securities at fair value

On January 1, 2012, Valuation Allowance for Trading Investments had a zero balance. On December 31, 2012, the cost of the trading securities portfolio was $33,200, and the fair value was $39,500. Prepare the December 31, 2012, adjusting journal entry to record the unrealized gain or loss on trading investments.

OBJ. 4 EE 15-5 *p. 679*

PE 15-5A Valuing available-for-sale securities at fair value

On January 1, 2012, Valuation Allowance for Available-for-Sale Securities had a zero balance. On December 31, 2012, the cost of the available-for-sale securities was $62,400, and the fair value was $56,900. Prepare the adjusting entry to record the unrealized gain or loss for available-for-sale securities on December 31, 2012.

OBJ. 4 EE 15-5 *p. 679*

PE 15-5B Valuing available-for-sale securities at fair value

On January 1, 2012, Valuation Allowance for Available-for-Sale Securities had a zero balance. On December 31, 2012, the cost of the available-for-sale securities was $7,600, and the fair value was $9,500. Prepare the adjusting entry to record the unrealized gain or loss for available-for-sale securities on December 31, 2012.

OBJ. 6 EE 15-6 *p. 684*

FAI

PE 15-6A Dividend yield

On September 25, 2012, Lucas Corporation had a market price per share of common stock of $8. For the previous year, Lucas paid an annual dividend of $0.16. Compute the dividend yield for Lucas Corporation.

OBJ. 6 EE 15-6 *p. 684*

FAI

PE 15-6B Dividend yield

On June 12, 2012, Mid State Power and Electric Company had a market price per share of common stock of $48. For the previous year, Mid State paid an annual dividend of $2.88. Compute the dividend yield for Mid State Power and Electric Company.

Exercises

OBJ. 2

EX 15-1 Entries for investment in bonds, interest, and sale of bonds

Dristol Company acquired $56,000 Reynolds Company, 4.5% bonds on April 1, 2012, at par value. Interest is paid semiannually on April 1 and October 1. On October 1, 2012, Dristol sold $20,000 of the bonds for 99.

Journalize entries to record the following:

a. The initial acquisition of the bonds on April 1.

b. The semiannual interest received on October 1.

c. The sale of the bonds on October 1.

d. The accrual of $637 interest on December 31, 2012.

OBJ. 2

EX 15-2 Entries for investments in bonds, interest, and sale of bonds

Jupiter Investments acquired $40,000 Carlisle Corp., 9% bonds at par value on September 1, 2012. The bonds pay interest on September 1 and March 1. On March 1, 2013, Jupiter sold $40,000 par value Carlisle Corp. bonds at 103.

Journalize the entries to record the following:

a. The initial acquisition of the Carlisle Corp. bonds on September 1, 2012.

b. The adjusting entry for four months of accrued interest earned on the Carlisle Corp. bonds on December 31, 2012.

c. The receipt of semiannual interest on March 1, 2013.

d. The sale of $10,000 Carlisle Corp. bonds on March 1, 2013, at 103.

OBJ. 2

✔ Dec. 1, Loss on sale of investments, $220

EX 15-3 Entries for investment in bonds, interest, and sale of bonds

Afton Co. purchased $24,000 of 4%, 10-year Davis County bonds on July 12, 2012, directly from the county at par value. The bonds pay semiannual interest on May 1 and November 1. On December 1, 2012, Afton Co. sold $6,000 of the Davis County bonds at 98 plus $20 accrued interest, less a $100 brokerage commission.

Provide the journal entries for:

a. the purchase of the bonds on July 12, plus 72 days of accrued interest.

b. semiannual interest on November 1.

c. sale of the bonds on December 1.

d. adjusting entry for accrued interest of $120 on December 31, 2012.

OBJ. 2

✔ Sept. 5, Loss on sale of investments, $720

EX 15-4 Entries for investment in bonds, interest, and sale of bonds

The following bond investment transactions were completed during 2012 by Mission Company:

Jan. 21. Purchased 50, $1,000 par value government bonds at 100 plus 20 days' accrued interest. The bonds pay 4.5% annual interest on June 30 and January 1.

June 30. Received semiannual interest on bond investment.

Sept. 5. Sold 24, $1,000 par value bonds at 97 plus $201 accrued interest.

a. Journalize the entries for these transactions.

b. Provide the December 31, 2012, adjusting journal entry for semiannual interest earned from the bond coupon.

OBJ. 2

EX 15-5 Interest on bond investments

On May 1, 2012, Todd Company purchased $66,000 of 5%, 12-year Lincoln Company bonds at par plus two months' accrued interest. The bonds pay interest on March 1 and September 1. On October 1, 2012, Todd Company sold $24,000 of the Lincoln Company bonds acquired on May 1, plus one month accrued interest. On December 31, 2012, four months' interest was accrued for the remaining bonds.

Determine the interest earned by Todd Company on Lincoln Company bonds for 2012.

OBJ. 3

✔ c. Gain on sale of investments, $5,625

EX 15-6 Entries for investment in stock, receipt of dividends, and sale of shares

On February 17, Walters Corporation acquired 4,000 shares of the 100,000 outstanding shares of Lycore Co. common stock at $22.50 plus commission charges of $200. On July 11, a cash dividend of $0.80 per share was received. On December 4, 1,000 shares were sold at $28.30, less commission charges of $125.

Record the entries for (a) the purchase of stock, (b) the receipt of dividends, and (c) the sale of 1,000 shares.

OBJ. 3

✔ June 3, Loss on sale of investments, $4,097

EX 15-7 Entries for investment in stock, receipt of dividends, and sale of shares

The following equity investment-related transactions were completed by Kindle Company in 2012:

Jan. 12. Purchased 1,400 shares of Inskip Company for a price of $48.90 per share plus a brokerage commission of $112.

Apr. 10. Received a quarterly dividend of $0.22 per share on the Inskip Company investment.

June 3. Sold 900 shares for a price of $44.50 per share less a brokerage commission of $65.

Journalize the entries for these transactions.

OBJ. 3

✔ Nov. 14, Dividend revenue, $60

EX 15-8 Entries for stock investments, dividends, and sale of stock

Archway Tech Corp. manufactures surveying equipment. Journalize the entries to record the following selected equity investment transactions completed by Archway during 2012:

Feb. 2. Purchased for cash 800 shares of Parr Inc. stock for $28 per share plus a $120 brokerage commission.

Apr. 16. Received dividends of $0.12 per share on Parr Inc. stock.

June 17. Purchased 600 shares of Parr Inc. stock for $33 per share plus a $150 brokerage commission.

Aug. 19. Sold 1,000 shares of Parr Inc. stock for $41 per share less a $200 brokerage commission. Archway assumes that the first investments purchased are the first investments sold.

Nov. 14. Received dividends of $0.15 per share on Parr Inc. stock.

OBJ. 3

EX 15-9 Entries for stock investments, dividends, and sale of stock

Hombolt Industries, Inc. buys and sells investments as part of its ongoing cash management. The following investment transactions were completed during the year:

Feb. 6. Acquired 500 shares of Randolph Co. stock for $112 per share plus a $125 brokerage commission.

Apr. 21. Acquired 1,400 shares of Sterling Co. stock for $28 per share plus a $98 commission.

Aug. 15. Sold 200 shares of Randolph Co. stock for $124 per share less an $80 brokerage commission.

Sept. 8. Sold 500 shares of Sterling Co. stock for $22.50 per share less a $70 brokerage commission.

Oct. 31. Received dividends of $0.26 per share on Randolph Co. stock.

Journalize the entries for these transactions.

OBJ. 3

EX 15-10 Equity method for stock investment

At a total cost of $660,000, Penn Corporation acquired 60,000 shares of Teller Corp. common stock as a long-term investment. Penn Corporation uses the equity method of accounting for this investment. Teller Corp. has 200,000 shares of common stock outstanding, including the shares acquired by Penn Corporation.

Journalize the entries by Penn Corporation to record the following information:

a. Teller Corp. reports net income of $940,000 for the current period.

b. A cash dividend of $2.50 per common share is paid by Teller Corp. during the current period.

c. Why is the equity method appropriate for the Teller Corp. investment?

OBJ. 3

✓ b. $3,786,300

EX 15-11 Equity method for stock investment

On January 15, 2012, Outdoor Life Inc. purchased 94,500 shares of Escape Tours Inc. directly from one of the founders for a price of $38 per share. Escape Tours has 225,000 shares outstanding, including the Outdoor Life shares. On July 2, 2012, Escape Tours paid $230,000 in total dividends to its shareholders. On December 31, 2012, Escape Tours reported a net income of $695,000 for the year. Outdoor Life uses the equity method in accounting for its investment in Escape Tours.

a. Provide the Outdoor Life Inc. journal entries for the transactions involving its investment in Escape Tours Inc. during 2012.

b. Determine the December 31, 2012, balance of Investment in Escape Tours Inc. Stock.

OBJ. 3

EX 15-12 Equity method for stock investment with loss

On January 10, 2012, Badger Co. purchased 30% of the outstanding stock of Crest Co. for $123,000. Crest paid total dividend to all shareholders of $15,000 on July 15. Crest had a net loss of $25,000 for 2012.

a. Journalize Badger's purchase of the stock, receipt of dividend, and adjusting entry for the equity loss in Crest Co. stock.

b. Compute the balance of Investment in Crest Co. Stock for December 31, 2012.

c. How does valuing an investment under the equity method differ from valuing an investment at fair value?

OBJ. 3

EX 15-13 Equity method for stock investment

Jarvis Company's balance sheet disclosed its long-term investment in Moss Company under the equity method for comparative years as follows:

	Dec. 31, 2013	Dec. 31, 2012
Investment in Moss Company stock (in millions)	$105	$116

In addition, the 2013 Jarvis Company income statement disclosed equity earnings in the Moss Company investment as $15 million. Jarvis Company neither purchased nor sold Moss Company stock during 2013. The fair value of Moss Company stock investment on December 31, 2013, was $125 million.

Explain the change in the Investment in Moss Company Stock balance sheet account from December 31, 2012, to December 31, 2013.

OBJ. 4

✓ g. $6,000

EX 15-14 Missing statement items, trading investments

KVS Capital, Inc., makes investments in trading securities. Selected income statement items for the years ended December 31, 2012 and 2013, plus selected items from comparative balance sheets, are as follows:

KVS Capital, Inc.
Selected Income Statement Items
For the Years Ended December 31, 2012 and 2013

	2012	2013
Operating income	a.	e.
Unrealized gain (loss)	b.	$(3,000)
Net income	c.	19,000

KVS Capital, Inc.
Selected Balance Sheet Items
December 31, 2011, 2012, and 2013

	Dec. 31, 2011	Dec. 31, 2012	Dec. 31, 2013
Trading investments, at cost	$123,000	$146,000	$172,000
Valuation allowance for trading investments	(4,000)	9,000	g.
Trading investments, at fair value	d.	f.	h.
Retained earnings	$156,000	$192,000	i.

There were no dividends.

Determine the missing lettered items.

OBJ. 3, 4

EX 15-15 Fair value journal entries, trading investments

The investments of Giving Tree, Inc. include a single investment: 9,000 shares of Cardio Solutions, Inc. common stock purchased on March 3, 2012, for $22 per share including brokerage commission. These shares were classified as trading securities. As of the December 31, 2012, balance sheet date, the share price increased to $29 per share.

a. Journalize the entries to acquire the investment on March 3, and record the adjustment to fair value on December 31, 2012.

b. How is the unrealized gain or loss for trading investments disclosed on the financial statements?

OBJ. 3, 4

EX 15-16 Fair value journal entries, trading investments

Acorn Bancorp Inc. purchased a portfolio of trading securities during 2012. The cost and fair value of this portfolio on December 31, 2012, was as follows:

Name	Number of Shares	Total Cost	Total Fair Value
Apex, Inc.	1,200	$16,000	$17,500
Evans Company	700	23,000	19,000
Quaker Company	300	9,000	8,600
Total		$48,000	$45,100

On April 3, 2013, Acorn Bancorp Inc. purchased 500 shares of Luke, Inc., at $36 per share plus a $100 brokerage fee.

Provide the journal entries to record the following:

a. The adjustment of the trading security portfolio to fair value on December 31, 2012.

b. The April 3, 2013, purchase of Luke, Inc., stock.

OBJ. 3, 4

✔ a. Dec. 31, 2012, Unrealized gain on trading investments, $12,600

EX 15-17 Fair value journal entries, trading investments

First Guarantee Financial, Inc., purchased the following trading securities during 2012, its first year of operations:

Name	Number of Shares	Cost
B&T Transportation, Inc.	3,400	$ 74,200
Citrus Foods, Inc.	1,500	26,500
Stuart Housewares, Inc.	800	45,200
Total		$145,900

The market price per share for the trading security portfolio on December 31, 2012, was as follows:

	Market Price per Share
	Dec. 31, 2012
B&T Transportation, Inc.	$26
Citrus Foods, Inc.	19
Stuart Housewares, Inc.	52

a. Provide the journal entry to adjust the trading security portfolio to fair value on December 31, 2012.

b. Assume the market prices of the portfolio were the same on December 31, 2013, as they were on December 31, 2012. What would be the journal entry to adjust the portfolio to fair value?

OBJ. 4

EX 15-18 Financial statement disclosure, trading investments

The income statement for Tri-Con, Inc., for the year ended December 31, 2012, was as follows:

Tri-Con, Inc.
Income Statement (selected items)
For the Year Ended December 31, 2012

Income from operations	$148,000
Gain on sale of investments	12,000
Less unrealized loss on trading investments	34,000
Net income	$126,000

The balance sheet dated December 31, 2011, showed a Retained Earnings balance of $614,000. During 2012, the company purchased trading investments for the first time at a cost of $166,000. In addition, trading investments with a cost of $45,000 were sold at a gain during 2012. The company paid $35,000 in dividends during 2012.

a. Determine the December 31, 2012, Retained Earnings balance.

b. Provide the December 31, 2012, balance sheet disclosure for Trading Investments.

OBJ. 4

✔ f. ($9,000)

EX 15-19 Missing statement items, available-for-sale securities

Oceanic Airways makes investments in available-for-sale securities. Selected income statement items for the years ended December 31, 2012 and 2013, plus selected items from comparative balance sheets, are as follows:

Oceanic Airways
Selected Income Statement Items
For the Years Ended December 31, 2012 and 2013

	2012	2013
Operating income	a.	g.
Gain (loss) from sale of investments	$4,000	$ (8,000)
Net income (loss)	b.	(15,000)

Oceanic Airways
Selected Balance Sheet Items
December 31, 2011, 2012, and 2013

	Dec. 31, 2011	Dec. 31, 2012	Dec. 31, 2013
Assets			
Available-for-sale investments, at cost	$ 78,000	$ 68,000	$95,000
Valuation allowance for available-for-sale investments	6,000	(9,000)	h.
Available-for-sale investments, at fair value	c.	e.	i.
Stockholders' Equity			
Unrealized gain (loss) on available-for- sale investments	d.	f.	(11,000)
Retained earnings	$151,000	$201,000	j.

There were no dividends.
Determine the missing lettered items.

OBJ. 3, 4

EX 15-20 Fair value journal entries, available-for-sale investments

The investments of Macon, Inc. include a single investment: 8,000 shares of Pacific Wave, Inc. common stock purchased on August 10, 2012, for $8 per share including brokerage commission. These shares were classified as available-for-sale securities. As of the December 31, 2012, balance sheet date, the share price declined to $6 per share.

a. Journalize the entries to acquire the investment on August 10, and record the adjustment to fair value on December 31, 2012.

b. How is the unrealized gain or loss for available-for-sale investments disclosed on the financial statements?

OBJ. 3, 4

EX 15-21 Fair value journal entries, available-for-sale investments

Arnott Inc. purchased a portfolio of available-for-sale securities in 2012, its first year of operations. The cost and fair value of this portfolio on December 31, 2012, was as follows:

Name	Number of Shares	Total Cost	Total Fair Value
Jasper, Inc.	600	$ 9,000	$10,500
Parker Corp.	900	21,000	23,400
Smithfield Corp.	1,800	32,500	31,900
Total		$62,500	$65,800

On May 10, 2013, Arnott purchased 900 shares of Violet Inc. at $42 per share plus a $125 brokerage fee.

a. Provide the journal entries to record the following:
   1. The adjustment of the available-for-sale security portfolio to fair value on December 31, 2012.
   2. The May 10, 2013, purchase of Violet Inc. stock.

b. How are unrealized gains and losses treated differently for available-for-sale securities than for trading securities?

OBJ. 3, 4

EX 15-22 Fair value journal entries, available-for-sale investments

Cumberland, Inc., purchased the following available-for-sale securities during 2012, its first year of operations:

Name	Number of Shares	Cost
Abbotford Electronics, Inc.	1,500	$ 42,500
Ryan Co.	400	28,200
Sharon Co.	2,200	66,100
Total		$136,800

The market price per share for the available-for-sale security portfolio on December 31, 2012, was as follows:

	Market Price per Share Dec. 31, 2012
Abbotford Electronics, Inc.	$22
Ryan Co.	65
Sharon Co.	32

a. Provide the journal entry to adjust the available-for-sale security portfolio to fair value on December 31, 2012.

b. Describe the income statement impact from the December 31, 2012, journal entry.

OBJ. 4

EX 15-23 Balance sheet presentation of available-for-sale investments

During 2012, its first year of operations, Newton Company purchased two available-for-sale investments as follows:

Security	Shares Purchased	Cost
Starlight Products, Inc.	700	$31,000
Reynolds Co.	1,900	41,000

Assume that as of December 31, 2012, the Starlight Products, Inc., stock had a market value of $55 per share and the Reynolds Co. stock had a market value of $18 per share. Newton Company had net income of $250,000, and paid no dividends for the year ending December 31, 2012.

a. Prepare the Current Assets section of the balance sheet presentation for the available-for-sale investments.

b. Prepare the Stockholders' Equity section of the balance sheet to reflect the earnings and unrealized gain (loss) for the available-for-sale investments.

OBJ. 4

EX 15-24 Balance sheet presentation of available-for-sale investments

During 2012, Norcross Corporation held a portfolio of available-for-sale securities having a cost of $175,000. There were no purchases or sales of investments during the year. The market values at the beginning and end of the year were $215,000 and $150,000, respectively. The net income for 2012 was $110,000, and no dividends were paid during the year. The Stockholders' Equity section of the balance sheet was as follows on December 31, 2011:

Norcross Corporation
Stockholders' Equity
December 31, 2011

Common stock	$ 50,000
Paid-in capital in excess of par value	350,000
Retained earnings	265,000
Unrealized gain (loss) on available-for- sale investments	40,000
Total	$705,000

Prepare the Stockholders' Equity section of the balance sheet for December 31, 2012.

Appendix

EX 15-25 Comprehensive income

On April 23, 2012, Frost Co. purchased 1,500 shares of Apex, Inc., for $88 per share including the brokerage commission. The Apex investment was classified as an available-for-sale security. On December 31, 2012, the fair value of Apex, Inc., was $101 per share. The net income of Frost Co. was $60,000 for 2012.

Compute the comprehensive income for Frost Co. for the year ended December 31, 2012.

Appendix

EX 15-26 Comprehensive income

On December 31, 2011, Memphis Co. had the following available-for-sale investment disclosure within the Current Assets section of the balance sheet:

Available-for-sale investments (at cost)	$105,000
Plus valuation allowance for available-for-sale investments	15,000
Available-for-sale investments (at fair value)	$120,000

There were no purchases or sales of available-for-sale investments during 2012. On December 31, 2012, the fair value of the available-for-sale investment portfolio was $94,000. The net income of Memphis Co. was $150,000 for 2012.

Compute the comprehensive income for Memphis Co. for the year ended December 31, 2012.

OBJ. 6

FAI

EX 15-27 Dividend yield

At the market close on February 19, 2010, McDonald's Corporation had a closing stock price of $64.74. In addition, McDonald's Corporation had a dividend per share of $2.05 over the previous year.

Determine McDonald's Corporation's dividend yield. (Round to one decimal place.)

OBJ. 6

✔ a. Dec. 31, 2008, 2.37%

EX 15-28 Dividend yield

The market price for **Microsoft Corporation** closed at $19.40 and $30.48 on December 31, 2008, and 2009, respectively. The dividends per share were $0.46 for 2008 and $0.52 for 2009.

a. Determine the dividend yield for Microsoft on December 31, 2008, and 2009. (Round percentages to two decimal places.)

b. Interpret these measures.

OBJ. 6

EX 15-29 Dividend yield

eBay Inc. developed a Web-based marketplace at **http://www.ebay.com**, in which individuals can buy and sell a variety of items. eBay also acquired **PayPal**, an online payments system that allows businesses and individuals to send and receive online payments securely. In a recent annual report, eBay published the following dividend policy:

> *We have never paid cash dividends on our stock and currently anticipate that we will continue to retain any future earnings for the foreseeable future.*

Given eBay's dividend policy, why would an investor be attracted to its stock?

Problems Series A

OBJ. 2, 4

PR 15-1A Debt investment transactions, available-for-sale valuation

Fleet Inc. is an athletic footware company that began operations on January 1, 2012. The following transactions relate to debt investments acquired by Fleet Inc., which has a fiscal year ending on December 31:

2012

Mar. 1. Purchased $36,000 of Madison Co. 5%, 10-year bonds at face value plus accrued interest of $150. The bonds pay interest semiannually on February 1 and August 1.

Apr. 16. Purchased $45,000 of Westville 4%, 15-year bonds at face value plus accrued interest of $75. The bonds pay interest semiannually on April 1 and October 1.

Aug. 1. Received semiannual interest on the Madison Co. bonds.

Sept. 1. Sold $12,000 of Madison Co. bonds at 98 plus accrued interest of $50.

Oct. 1. Received semiannual interest on Westville bonds.

Dec. 31. Accrued $500 interest on Madison Co. bonds.

31. Accrued $450 interest on Westville bonds.

2013

Feb. 1. Received semiannual interest on the Madison Co. bonds.

Apr. 1. Received semiannual interest on the Westville bonds.

Instructions

1. Journalize the entries to record these transactions.
2. If the bond portfolio was classified as available-for-sale, what impact would this have on financial statement disclosure?

OBJ. 3, 4

PR 15-2A Stock investment transactions, trading securities

Heritage Insurance Co. is a regional insurance company that began operations on January 1, 2012. The following transactions relate to trading securities acquired by Heritage Insurance Co., which has a fiscal year ending on December 31:

2012

Feb. 21. Purchased 4,000 shares of Astor Inc. as a trading security at $30 per share plus a brokerage commission of $600.

Mar. 9. Purchased 800 shares of Millsaps Inc. as a trading security at $41 per share plus a brokerage commission of $160.

May 3. Sold 600 shares of Astor Inc. for $27.50 per share less an $80 brokerage commission.

June 8. Received an annual dividend of $0.22 per share on Astor Inc. stock.

Dec. 31. The portfolio of trading securities was adjusted to fair values of $32 and $30 per share for Astor Inc. and Millsaps Inc., respectively.

2013

May 21. Purchased 2,000 shares of Essex Inc. as a trading security at $21 per share plus a $200 brokerage commission.

June 11. Received an annual dividend of $0.25 per share on Astor Inc. stock.

Aug. 16. Sold 400 shares of Essex Inc. for $25 per share less an $80 brokerage commission.

Dec. 31. The portfolio of trading securities had a cost of $169,230 and fair value of $170,560, requiring a debit balance in Valuation Allowance for Trading Investments of $1,330 ($170,560 − $169,230). Thus, the credit balance from December 31, 2012, is to be adjusted to the new balance.

Instructions

1. Journalize the entries to record these transactions.
2. Prepare the investment-related current asset balance sheet disclosures for Heritage Insurance Co. on December 31, 2013.
3. How are unrealized gains or losses on trading investments disclosed on the financial statements of Heritage Insurance Co.?

OBJ. 3, 4

PR 15-3A Stock investment transactions, equity method and available-for-sale securities

White Way Inc. produces and sells theater set designs and costumes. The company began operations on January 1, 2012. The following transactions relate to securities acquired by White Way Inc., which has a fiscal year ending on December 31:

2012

Jan. 10. Purchased 8,000 shares of Lott Inc. as an available-for-sale security at $14 per share, including the brokerage commission.

Mar. 10. Received the regular cash dividend of $0.12 per share on Lott Inc. stock.

Sept. 9. Lott Inc. stock was split two for one. The regular cash dividend of $0.06 per share was received on the stock after the stock split.

Oct. 16. Sold 2,000 shares of Lott Inc. stock at $5 per share, less a brokerage commission of $100.

Dec. 31. Lott Inc. is classified as an available-for-sale investment and is adjusted to a fair value of $8.50 per share. Use the valuation allowance for available-for-sale investments account in making the adjustment.

2013

Jan. 5. Purchased an influential interest in Stage Hand Inc. for $235,000 by purchasing 50,000 shares directly from the estate of the founder of Stage Hand Inc. There are 200,000 shares of Stage Hand Inc. stock outstanding.

Mar. 9. Received the regular cash divided of $0.07 per share on Lott Inc. stock.

Sept. 10. Received the regular cash dividend of $0.07 per share plus an extra dividend of $0.03 per share on Lott Inc. stock.

Dec. 31. Received $21,500 of cash dividends on Stage Hand Inc. stock. Stage Hand Inc. reported net income of $136,000 in 2013. White Way Inc. uses the equity method of accounting for its investment in Stage Hand Inc.

31. Lott Inc. is classified as an available-for-sale investment and is adjusted to a fair value of $8 per share. Use the valuation allowance for available-for-sale investments account in making the adjustment for the decrease in fair value from $8.50 to $8.00 per share.

Instructions

1. Journalize the entries to record these transactions.
2. Prepare the investment-related asset and stockholders' equity balance sheet disclosures for White Way Inc. on December 31, 2013, assuming the Retained Earnings balance on December 31, 2013, is $310,000.

OBJ. 2, 3, 4

✔ h. $(4,500)

PR 15-4A Investment reporting

Luminous Publishing, Inc., is a book publisher. The comparative unclassified balance sheets for December 31, 2013 and 2012 are provided below. Selected missing balances are shown by letters.

Luminous Publishing, Inc.
Balance Sheet
December 31, 2013 and 2012

	Dec. 31, 2013	Dec. 31, 2012
Cash	$178,000	$157,000
Accounts receivable (net)	106,000	98,000
Available-for-sale investments (at cost)—Note 1	a.	53,400
Less valuation allowance for available-for-sale investments	b.	3,900
Available-for-sale investments (fair value)	$ c.	$ 49,500
Interest receivable	$ d.	—
Investment in Quest Co. stock—Note 2	e.	$ 55,000
Office equipment (net)	90,000	95,000
Total assets	$ f.	$454,500
Accounts payable	$ 56,900	$ 51,400
Common stock	50,000	50,000
Excess of issue price over par	160,000	160,000
Retained earnings	g.	197,000
Less unrealized gain (loss) on available-for-sale investments	h.	3,900
Total liabilities and stockholders' equity	$ i.	$454,500

Note 1. Investments are classified as available for sale. The investments at cost and fair value on December 31, 2012, are as follows:

	No. of Shares	Cost per Share	Total Cost	Total Fair Value
Barns Co. Stock	1,600	$12	$19,200	$17,500
Dynasty Co. Stock	900	38	34,200	32,000
			$53,400	$49,500

Note 2. The investment in Quest Co. stock is an equity method investment representing 32% of the outstanding shares of Quest Co.

The following selected investment transactions occurred during 2013:

May 5. Purchased 2,200 shares of Gypsy, Inc., at $22 per share including brokerage commission. Gypsy, Inc., is classified as an available-for-sale security.

Sept. 1. Purchased $30,000 of Norton Co. 5%, 10-year bonds at 100. The bonds are classified as available for sale. The bonds pay interest on September 1 and March 1.

9. Dividends of $9,000 are received on the Quest Co. investment.

Dec. 31. Quest Co. reported a total net income of $80,000 for 2013. Luminous recorded equity earnings for its share of Quest Co. net income.

31. Accrued four months of interest on the Norton bonds.

31. Adjusted the available-for-sale investment portfolio to fair value using the following fair value per-share amounts:

Available-for-Sale Investments	Fair Value
Barns Co. stock	$11 per share
Dynasty Co. stock	$33 per share
Gypsy Inc. stock	$23 per share
Norton Co. bonds	98 per $100 of face value

Dec. 31. Closed the Luminous Publishing Inc. net income of $114,000 for 2013. Luminous paid no dividends during 2013.

Instructions

Determine the missing letters in the unclassified balance sheet. Provide appropriate supporting calculations.

Problems Series B

OBJ. 2, 4

PR 15-1B Debt investment transactions, available-for-sale valuation

Savers Mart Inc. is a general merchandise retail company that began operations on January 1, 2012. The following transactions relate to debt investments acquired by Savers Mart Inc., which has a fiscal year ending on December 31:

2012

May 1. Purchased $80,000 of Northridge City 4.5%, 10-year bonds at face value plus accrued interest of $600. The bonds pay interest semiannually on March 1 and September 1.

June 16. Purchased $38,000 of Hancock Co. 6%, 12-year bonds at face value plus accrued interest of $95. The bonds pay interest semiannually on June 1 and December 1.

Sept. 1. Received semiannual interest on the Northridge City bonds.

Oct. 1. Sold $24,000 of Northridge City bonds at 102 plus accrued interest of $90.

Dec. 1. Received semiannual interest on Hancock Co. bonds.

31. Accrued $840 interest on Northridge City bonds.

31. Accrued $190 interest on Hancock Co. bonds.

2013

Mar. 1. Received semiannual interest on the Northridge City bonds.

June 1. Received semiannual interest on the Hancock Co. bonds.

Instructions

1. Journalize the entries to record these transactions.
2. If the bond portfolio was classified as available-for-sale, what impact would this have on financial statement disclosure?

OBJ. 3, 4

PR 15-2B Stock investment transactions, trading securities

Ophir Investments Inc. is a regional investment company that began operations on January 1, 2012. The following transactions relate to trading securities acquired by Ophir Investments Inc., which has a fiscal year ending on December 31:

2012

Feb. 3. Purchased 2,000 shares of Mapco Inc. as a trading security at $42 per share plus a brokerage commission of $500.

Mar. 23. Purchased 1,400 shares of Swift Inc. as a trading security at $23 per share plus a brokerage commission of $210.

May 19. Sold 500 shares of Mapco Inc. for $46 per share less an $80 brokerage commission.

June 12. Received an annual dividend of $0.14 per share on Mapco stock.

Dec. 31. The portfolio of trading securities was adjusted to fair values of $40 and $29 per share for Mapco Inc. and Swift Inc., respectively.

2013

Apr. 9. Purchased 900 shares of Corvair Inc. as a trading security at $62 per share plus a $90 brokerage commission.

June 15. Received an annual dividend of $0.16 per share on Mapco Inc. stock.

Aug. 30. Sold 200 shares of Corvair Inc. for $51 per share less a $60 brokerage commission.

Dec. 31. The portfolio of trading securities had a cost of $139,255 and fair value of $133,470, requiring a credit balance in Valuation Allowance for Trading Investments of $5,785 ($139,255 − $133,470). Thus, the debit balance from December 31, 2012, is to be adjusted to the new balance.

Instructions

1. Journalize the entries to record these transactions.
2. Prepare the investment-related current asset balance sheet disclosures for Ophir Investments Inc. on December 31, 2013.
3. How are unrealized gains or losses on trading investments disclosed on the financial statements of Ophir Investments Inc.?

OBJ. 3, 4

PR 15-3B Stock investment transactions, equity method and available-for-sale securities

Samson Products, Inc., is a wholesaler of men's hair products. The company began operations on January 1, 2012. The following transactions relate to securities acquired by Samson Products, Inc., which has a fiscal year ending on December 31:

2012

Jan. 3. Purchased 5,000 shares of Merlin Inc. as an available-for-sale investment at $22 per share, including the brokerage commission.

July 8. Merlin Inc. stock was split two for one. The regular cash dividend of $0.40 per share was received on the stock after the stock split.

Oct. 19. Sold 1,200 shares of Merlin Inc. stock at $13 per share, less a brokerage commission of $50.

Dec. 12. Received the regular cash dividend of $0.40 per share.

31. Merlin Inc. is classified as an available-for-sale investment and is adjusted to a fair value of $9.50 per share. Use the valuation allowance for available-for-sale investments account in making the adjustment.

2013

Jan. 5. Purchased an influential interest in Juarez Co. for $540,000 by purchasing 60,000 shares directly from the estate of the founder of Juarez. There are 150,000 shares of Juarez Co. stock outstanding.

July 9. Received the regular cash divided of $0.50 per share on Merlin Inc. stock.

Dec. 8. Received the regular cash dividend of $0.50 per share plus an extra dividend of $0.05 per share on Merlin Inc. stock.

Dec. 31. Received $21,000 of cash dividends on Juarez Co. stock. Juarez Co. reported net income of $96,000 in 2013. Samson Products uses the equity method of accounting for its investment in Juarez Co.

31. Merlin Inc. is classified as an available-for-sale investment and is adjusted to a fair value of $10 per share. Use the valuation allowance for available-for-sale investments account in making the adjustment for the increase in fair value from $9.50 to $10 per share.

Instructions

1. Journalize the entries to record the preceding transactions.
2. Prepare the investment-related asset and stockholders' equity balance sheet disclosures for Samson Products, Inc., on December 31, 2013, assuming the Retained Earnings balance on December 31, 2013, is $395,000.

OBJ. 2, 3, 4

✔ b. $250

PR 15-4B Investment reporting

Guardian Devices, Inc., manufactures and sells commercial and residential security equipment. The comparative unclassified balance sheets for December 31, 2013 and 2012 are provided below. Selected missing balances are shown by letters.

Guardian Devices, Inc.
Balance Sheet
December 31, 2013 and 2012

	Dec. 31, 2013	Dec. 31, 2012
Cash	$104,000	$ 98,000
Accounts receivable (net)	71,000	67,500
Available-for-sale investments (at cost)—Note 1	a.	36,000
Plus valuation allowance for available-for-sale investments	b.	6,000
Available-for-sale investments (fair value)	$ c.	$ 42,000
Interest receivable	$ d.	—
Investment in Omaha Co. stock—Note 2	e.	$ 62,000
Office equipment (net)	60,000	65,000
Total assets	$ f.	$334,500
Accounts payable	$ 56,900	$ 45,100
Common stock	50,000	50,000
Excess of issue price over par	160,000	160,000
Retained earnings	g.	73,400
Plus unrealized gain (loss) on available-for-sale investments	h.	6,000
Total liabilities and stockholders' equity	$ i.	$334,500

Note 1. Investments are classified as available for sale. The investments at cost and fair value on December 31, 2012, are as follows:

	No. of Shares	Cost per Share	Total Cost	Total Fair Value
Tyndale Inc. Stock	600	$24	$14,400	$17,000
UR-Smart Inc. Stock	1,200	18	21,600	25,000
			$36,000	$42,000

Note 2. The Investment in Omaha Co. stock is an equity method investment representing 32% of the outstanding shares of Omaha Co.

The following selected investment transactions occurred during 2013:

Apr. 21. Purchased 500 shares of Walton Winery, Inc., at $25 including brokerage commission. Walton Winery is classified as an available-for-sale security.

Sept. 9. Dividends of $7,500 are received on the Omaha Co. investment.

Oct. 1. Purchased $15,000 of Yokohama Co. 6%, 10-year bonds at 100. The bonds are classified as available for sale. The bonds pay interest on October 1 and April 1.

Dec. 31. Omaha Co. reported a total net income of $50,000 for 2013. Guardian recorded equity earnings for its share of Omaha Co. net income.

Dec. 31. Accrued interest for three months on Yokohama bonds purchased on October 1.

31. Adjusted the available-for-sale investment portfolio to fair value using the following fair value per-share amounts:

Available-for-Sale Investments	Fair Value
Tyndale Inc. stock	$26 per share
UR-Smart, Inc., stock	$15 per share
Walton Winery, Inc., stock	$30 per share
Yokohama Co. bonds	101 per $100 of face value

31. Closed the Guardian Devices, Inc., net income of $28,925 for 2013. Guardian paid no dividends during 2013.

Instructions

Determine the missing letters in the unclassified balance sheet. Provide appropriate supporting calculations.

Comprehensive Problem 4

GL GENERAL LEDGER

Selected transactions completed by Everyday Products Inc. during the fiscal year ending December 31, 2012, were as follows:

a. Issued 12,500 shares of $25 par common stock at $32, receiving cash.

b. Issued 2,000 shares of $100 par preferred 5% stock at $105, receiving cash.

c. Issued $400,000 of 10-year, 6% bonds at 105, with interest payable semiannually.

d. Declared a quarterly dividend of $0.45 per share on common stock and $1.25 per share on preferred stock. On the date of record, 85,000 shares of common stock were outstanding, no treasury shares were held, and 17,000 shares of preferred stock were outstanding.

e. Paid the cash dividends declared in (d).

f. Purchased 5,500 shares of Kress Corp. at $22 per share, plus a $275 brokerage commission. The investment is classified as an available-for-sale investment.

g. Purchased 6,500 shares of treasury common stock at $35 per share.

h. Purchased 36,000 shares of Lifecare Co. stock directly from the founders for $18 per share. Lifecare has 112,500 shares issued and outstanding. Everyday Products Inc. treated the investment as an equity method investment.

i. Declared a 2% stock dividend on common stock and a $1.25 quarterly cash dividend per share on preferred stock. On the date of declaration, the market value of the common stock was $40 per share. On the date of record, 85,000 shares of common stock had been issued, 6,500 shares of treasury common stock were held, and 17,000 shares of preferred stock had been issued.

j. Issued the stock certificates for the stock dividends declared in (h) and paid the cash dividends to the preferred stockholders.

k. Received $24,500 dividend from Lifecare Co. investment in (h).

l. Purchased $62,000 of Nordic Wear Inc. 10-year, 6% bonds, directly from the issuing company at par value, plus accrued interest of $550. The bonds are classifed as a held-to-maturity long-term investment.

m. Sold, at $42 per share, 2,600 shares of treasury common stock purchased in (g).

n. Received a dividend of $0.65 per share from the Kress Corp. investment in (f).

o. Sold 500 shares of Kress Corp. at $26.50, including commission.

p. Recorded the payment of semiannual interest on the bonds issued in (c) and the amortization of the premium for six months. The amortization was determined using the straight-line method.

q. Accrued interest for three months on the Nordic Wear Inc. bonds purchased in (l).

r. Lifecare Co. recorded total earnings of $205,000. Everyday Products recorded equity earnings for its share of Lifecare Co. net income.

s. The fair value for Kress Corp. stock was $18.50 per share on December 31, 2012. The investment is adjusted to fair value using a valuation allowance account. Assume Valuation Allowance for Available-for-Sale Investments had a beginning balance of zero.

Instructions

1. Journalize the selected transactions.
2. After all of the transactions for the year ended December 31, 2012, had been posted [including the transactions recorded in part (1) and all adjusting entries], the data below and on the following page were taken from the records of Everyday Products Inc.
    a. Prepare a multiple-step income statement for the year ended December 31, 2012, concluding with earnings per share. In computing earnings per share, assume that the average number of common shares outstanding was 84,000 and preferred dividends were $85,000. (Round earnings per share to the nearest cent.)
    b. Prepare a retained earnings statement for the year ended December 31, 2012.
    c. Prepare a balance sheet in report form as of December 31, 2012.

Income statement data:	
Advertising expense	$ 125,000
Cost of merchandise sold	3,650,000
Delivery expense	29,000
Depreciation expense—office buildings and equipment	26,000
Depreciation expense—store buildings and equipment	95,000
Dividend revenue	3,575
Gain on sale of investment	2,225
Income from Lifecare Co. investment	65,600
Income tax expense	128,500
Interest expense	19,000
Interest revenue	1,800
Miscellaneous administrative expense	7,500
Miscellaneous selling expense	13,750
Office rent expense	50,000
Office salaries expense	165,000
Office supplies expense	10,000
Sales	5,145,000
Sales commissions	182,000
Sales salaries expense	365,000
Store supplies expense	22,000

Retained earnings and balance sheet data:	
Accounts payable	$ 195,000
Accounts receivable	543,000
Accumulated depreciation—office buildings and equipment	1,580,000
Accumulated depreciation—store buildings and equipment	4,126,000
Allowance for doubtful accounts	8,150
Available-for-sale investments (at cost)	110,250
Bonds payable, 6%, due 2022	400,000
Cash	240,000
Common stock, $25 par (400,000 shares authorized; 86,570 shares issued, 82,670 outstanding)	2,164,250
Dividends:	
Cash dividends for common stock	155,120
Cash dividends for preferred stock	85,000
Stock dividends for common stock	62,800
Goodwill	510,000
Income tax payable	40,000
Interest receivable	930
Investment in Lifecare Co. stock (equity method)	689,100
Investment in Nordic Wear Inc. bonds (long term)	62,000

Merchandise inventory (December 31, 2012), at lower of cost (FIFO) or market	$ 780,000
Office buildings and equipment	4,320,000
Paid-in capital from sale of treasury stock	18,200
Paid-in capital in excess of par—common stock	842,000
Paid-in capital in excess of par—preferred stock	150,000
Preferred 5% stock, $100 par (30,000 shares authorized; 17,000 shares issued)	1,700,000
Premium on bonds payable	19,000
Prepaid expenses	26,500
Retained earnings, January 1, 2012	8,708,150
Store buildings and equipment	12,560,000
Treasury stock (3,900 shares of common stock at cost of $35 per share)	136,500
Unrealized gain (loss) on available-for-sale investments	(17,750)
Valuation allowance for available-for-sale investments	(17,750)

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Financial Statements for Mornin' Joe

The financial statements of Mornin' Joe are provided in the following pages. Mornin' Joe is a fictitious coffeehouse chain featuring drip and espresso coffee in a café setting. The financial statements of Mornin' Joe are provided to illustrate the complete financial statements of a corporation using the terms, formats, and reporting illustrated throughout this text. In addition, excerpts of the Mornin' Joe financial statements are used to illustrate the financial reporting presentation for the topics discussed in Chapters 7–15. Thus, you can refer to the complete financial statements shown here or the excerpts in Chapters 7–15. A set of real world financial statements by Nike, Inc., is provided in Appendix C.

Mornin' Joe
Income Statement
For the Year Ended December 31, 2012

Revenue from sales:			
Sales		$5,450,000	
Less: Sales returns and allowances	$ 26,500		
Sales discounts	21,400	47,900	
Net sales			$5,402,100
Cost of merchandise sold			2,160,000
Gross profit			$3,242,100
Operating expenses			
Selling expenses:			
Wages expense	$825,000		
Advertising expense	678,900		
Depreciation expense—buildings	124,300		
Miscellaneous selling expense	26,500		
Total selling expenses		$1,654,700	
Administrative expenses:			
Office salaries expense	$325,000		
Rent expense	425,600		
Payroll tax expense	110,000		
Depreciation expense—office equipment	68,900		
Bad debt expense	14,000		
Amortization expense	10,500		
Total administrative expenses		954,000	
Total operating expenses			2,608,700
Income from operations			$ 633,400
Other income and expense:			
Interest revenue		$ 18,000	
Interest expense		(136,000)	
Loss on disposal of fixed asset		(23,000)	
Unrealized gain on trading investments		5,000	
Equity income in AM Coffee		57,000	(79,000)
Income before income taxes			$ 554,400
Income tax expense			132,800
Net income			$ 421,600
Basic earnings per share [($421,600 – $30,000)/44,000 shares issued and outstanding]			$ 8.90

Mornin' Joe
Balance Sheet
December 31, 2012

Assets			
Current assets:			
Cash and cash equivalents		$ 235,000	
Trading investments (at cost)	$ 420,000		
Plus valuation allowance for trading investments	45,000	465,000	
Accounts receivable	$ 305,000		
Less allowance for doubtful accounts	12,300	292,700	
Merchandise inventory—at lower of cost (first-in, first-out method) or market		120,000	
Prepaid insurance		24,000	
Total current assets			$1,136,700
Investments:			
Investment in AM Coffee (equity method)			565,000
Property, plant, and equipment:			
Land		$1,850,000	
Buildings	$2,650,000		
Less accumulated depreciation	420,000	2,230,000	
Office equipment	$ 350,000		
Less accumulated depreciation	102,000	248,000	
Total property, plant, and equipment			4,328,000
Intangible assets:			
Patents			140,000
Total assets			$6,169,700
Liabilities			
Current liabilities:			
Accounts payable		$ 133,000	
Notes payable (current portion)		200,000	
Salaries and wages payable		42,000	
Payroll taxes payable		16,400	
Interest payable		40,000	
Total current liabilities			$ 431,400
Long-term liabilities:			
Bonds payable, 8%, due December 31, 2030		$ 500,000	
Less unamortized discount		16,000	$ 484,000
Notes payable			1,400,000
Total long-term liabilities			$1,884,000
Total liabilities			$2,315,400
Stockholders' Equity			
Paid-in capital:			
Preferred 10% stock, $50 par (6,000 shares authorized and issued)		$ 300,000	
Excess of issue price over par		50,000	$ 350,000
Common stock, $20 par (50,000 shares authorized, 45,000 shares issued)		$ 900,000	
Excess of issue price over par		1,450,000	2,350,000
Total paid-in capital			$2,700,000
Retained earnings			1,200,300
Total			$3,900,300
Deduct treasury stock (1,000 shares at cost)			46,000
Total stockholders' equity			$3,854,300
Total liabilities and stockholders' equity			$6,169,700

Mornin' Joe
Retained Earnings Statement
For the Year Ended December 31, 2012

Retained earnings, January 1, 2012			$ 852,700
Net income		$421,600	
Less dividends:			
Preferred stock	$30,000		
Common stock	44,000	74,000	
Increase in retained earnings			347,600
Retained earnings, December 31, 2012			$1,200,300

Mornin' Joe
Statement of Stockholders' Equity
For the Year Ended December 31, 2012

	Preferred Stock	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Total
Balance, January 1, 2012	$300,000	$800,000	$1,325,000	$ 852,700	$(36,000)	$3,241,700
Net income				421,600		421,600
Dividends on preferred stock				(30,000)		(30,000)
Dividends on common stock				(44,000)		(44,000)
Issuance of additional common stock		100,000	175,000			275,000
Purchase of treasury stock					(10,000)	(10,000)
Balance, December 31, 2012	$300,000	$900,000	$1,500,000	$1,200,300	$(46,000)	$3,854,300

Mornin' Joe International

Mornin' Joe is planning to expand operations to various places around the world. Financing for this expansion will come from foreign banks. While financial statements prepared under U.S. GAAP may be appropriate for U.S. operations, financial statements prepared for foreign bankers should be prepared using international accounting standards.

The European Union (EU) has developed accounting standards similar in structure to U.S. standards. Its accounting standards board is called the International Accounting Standards Board (IASB). The IASB issues accounting standards that are termed *International Financial Reporting Standards* (IFRS). The intent of the IASB is to create a set of financial standards that can be used by public companies worldwide, not just in the EU.

Currently, the EU countries and over 100 other countries around the world have adopted or are planning to adopt IFRS. As a result, there are efforts under way to converge U.S. GAAP with IFRS so as to harmonize accounting standards around the world.

The following pages illustrate the financial statements of Mornin' Joe International using IFRS. This illustration highlights reporting and terminology differences between IFRS and U.S. GAAP. Differences in recording transactions under IFRS and U.S. GAAP are discussed in Appendix D and in various International Connection boxes throughout the text.

The following Mornin' Joe International financial statements are simplified and illustrate only portions of IFRS that are appropriate for introductory accounting. The financial statements are presented in euros (€) for demonstration purposes only. The euro is the standard currency of the European Union. The euro is translated at a 1:1 ratio from the dollar to simplify comparisons. Throughout the illustration, call-outs and end notes to each statement are used to highlight the differences between financial statements prepared under IFRS and under U.S. GAAP.

Mornin' Joe International
Statement of Comprehensive Income
For the Year Ended December 31, 2012

Sales (net)*	€5,402,100
Cost of merchandise sold	(2,160,000)
Gross profit	€3,242,100
Selling expenses	(1,654,700)
Administrative expenses	(954,000)
Loss on disposal of fixed asset	(23,000)
Other income (expenses)	23,000
Share in profit (loss) of associates*	57,000
Operating profit	€ 690,400
Finance costs*	(136,000)
Profit before income tax	€ 554,400
Tax expense*	(132,800)
Profit for the year*	€ 421,600
Other comprehensive income	
Gain on revaluation of properties*	44,800
Total comprehensive income for the year, net of tax*	€ 466,400
Earnings per share basic* (€421,600 ÷ 44,000 shares)	€ 9.58

*A required disclosure on the face of the statement of comprehensive income

Title includes the word omprehensive."

is is a common term for an equity method investment.

The term inance costs" is ed, rather than terest expense."

The term ofit for the year" s used, rather an "Net income."

Expenses are organized by their nature. See Note 2.

Diversity allowed with regard to subtotal definitions (Note 3).

Other comprehensive income is a required disclosure. See Note 4.

IFRS allows latitude on how statements are organized, but does list minimum disclosure requirements that are less restrictive than required by the SEC. See Note 1.

1. IFRS statements are often more summarized than U.S. GAAP statements. To compensate, IFRS requires specific disclosures on the face of the financial statements (denoted *) and additional disclosures in the footnotes to the financial statements. Since additions and subtractions are grouped together in sections of IFRS statements, parentheses are used to indicate subtractions.
2. Expenses in an IFRS income statement are classified by either their nature or function. The nature of an expense is how the expense would naturally be recorded in a journal entry reflecting the economic benefit received for that expense. Examples include salaries, depreciation, advertising, and utilities. The function of an expense identifies the purpose of the expense, such as a selling expense or an administrative expense.

   IFRS does not permit the natural and functional classifications to be mixed together on the same statement. That is, all expenses must be classified by either nature or function. However, if a functional classification of expenses is used, a footnote to the income statement must show the natural classification of expenses. To illustrate, because Mornin' Joe International uses the functional classification of expenses in its income statement, it must also show the following natural classification of expenses in a footnote:

Cost of product	€2,100,000	The cost of product purchased for resale
Employee benefits expense	1,260,000	Required natural disclosure
Depreciation and amortization expense	203,700	Required natural disclosure
Rent expense	425,600	
Advertising expense	678,900	
Other expenses	58,500	
Total natural expenses	€4,726,700	

3. IFRS provides flexibility with regard to line items, headings, and subtotals on the income statement. There is less flexibility under U.S. GAAP for public companies.
4. IFRS requires the reporting of other comprehensive income (see appendix to Chapter 15) either on the income statement (illustrated) or in a separate statement. In contrast, other comprehensive income is often disclosed on the statement of changes in stockholders' equity under U.S. GAAP. For Mornin' Joe International, other comprehensive income consists of the restatement of café locations to fair value (see Note 6 for more details).

Mornin' Joe International
Statement of Financial Position
December 31, 2012

Assets			
Noncurrent assets			
Property, plant, and equipment*			
Land and buildings at fair value	€4,180,000		
Less: Accumulated depreciation	375,200	€3,804,800	
Office equipment at cost	€ 350,000		
Less: Accumulated depreciation	102,000	248,000	
Biological assets at fair value*		320,000	
Patents at amortized cost*		140,000	
Investment in *AM Coffee* (equity method)*		565,000	
Total noncurrent assets			€5,077,800
Current assets			
Prepaid insurance		€ 24,000	
Merchandise inventory—**at lower of cost (first-in, first-out) or realizable value***		120,000	
Accounts receivable (net of allowance for doubtful accounts)*		292,700	
Financial assets at fair value through profit or loss*		465,000	
Cash and cash equivalents*		235,000	
Total current assets			1,136,700
Total assets*			€6,214,500
Equity attributable to owners			
Preferred 10% stock, $50 par (6,000 shares authorized and issued)*		€ 300,000	
Common stock, $20 par (50,000 shares authorized, 45,000 shares issued)*		900,000	
Share premium*		1,500,000	
Reserves*		(1,200)	
Retained earnings*		1,200,300	
Total equity attributable to owners*			€3,899,100
Liabilities			
Noncurrent liabilities*			
Bonds payable, 8%, due December 31, 2030 (net of discount)		€ 484,000	
Notes payable		1,400,000	
Total noncurrent liabilities			€1,884,000
Current liabilities			
Accounts payable*		€ 133,000	
Loans*		200,000	
Employee provisions*		58,400	
Interest payable		40,000	
Total current liabilities			431,400
Total liabilities*			€2,315,400
Total equity and liabilities*			€6,214,500

*Required disclosures. Footnotes provide additional subclassification detail.

Preferred title for the "Balance Sheet."

"Biological assets" are a required disclosure at fair value. See Note 7.

Inventory valuation. See Note 8.

International terminology for "Trading investments." Same accounting treatment.

International terminology for "Excess of issue price over par."

Other comprehensive items and treasury stock. See Note 9.

Employee provisions are wages, salaries, and payroll taxes payable. See Note 10.

Subclassifications of PP&E may be valued at fair value. See Note 6.

Reverse liquidity account order. See Note 5.

Equities listed first, then liabilities. See Note 5.

Noncurrent liabilities listed prior to current liabilities.

5. Under IFRS, there is no standard format for the balance sheet (statement of financial position). A typical format for European Union companies is to begin the asset section of the balance sheet with noncurrent assets. This is followed by current assets listed in reverse order of liquidity. That is, the asset side of the balance sheet is reported

in reverse order of liquidity from least liquid to most liquid. Listing noncurrent assets first emphasizes the going concern nature of the entity.

The liability and owners' equity side of the balance sheet is also reported differently than under U.S. GAAP. Specifically, owners' equity is reported first followed by noncurrent liabilities and current liabilities. Listing equity first emphasizes the going concern nature of the entity and the long-term financial interest of the owners in the business.

6. Under IFRS, property, plant, and equipment (PP&E) may be measured at historical cost or fair value. If fair value is used, the revaluation must be for similar classifications of PP&E, but need not be for all PP&E. This departs from U.S. GAAP which requires PP&E to be measured at historical cost. Mornin' Joe International restated its Land and Buildings to fair value since the café sites have readily available real estate market prices. Land and buildings are included together because their fair values are not separable. The office equipment remains at historical cost since its does not have a readily available market price. The increase in fair value is recorded by reducing accumulated depreciation and recognizing the gain as other comprehensive income. This element of other comprehensive income is accumulated in stockholders' equity under the heading Property revaluation reserve.* This treatment is similar (with different titles) to the U.S. GAAP treatment of unrealized gains (losses) from available-for-sale securities. For Mornin' Joe International, there is an increase in the property revaluation reserve of €44,800. This amount is the only difference between Mornin' Joe's U.S. GAAP net income, total assets, and total stockholders' equity and Mornin' Joe International's IFRS total comprehensive income, total assets, and total stockholders' equity.
7. Mornin' Joe International recently acquired a coffee plantation. This is an example of a biological asset. IFRS requires separate reporting of biological assets (principally agricultural assets) at fair value.
8. Inventories are valued at lower of cost or market; however, "market" is defined as net realizable value under IFRS. U.S. GAAP defines "market" as replacement cost under most conditions. In addition, IFRS prohibits LIFO cost valuation.
9. Under IFRS, some elements of other comprehensive income and owner's equity are often aggregated under the term "reserves." In contrast, under U.S. GAAP "reserve" is used to identify a liability. IFRS also does not require separate disclosure of treasury stock as does U.S. GAAP. Specifically, treasury stock may be reported as a reduction of a reserve, a reduction of a stock premium, or as a separate item.
10. The term "provision" is used to denote a liability under IFRS, whereas this term often indicates an expense under U.S. GAAP. For example, "Provision for income taxes" means "Income tax expense" under U.S. GAAP, whereas it would mean "Income taxes payable" under IFRS.

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* The term "property revaluation surplus" is also used.

Mornin' Joe International
Statement of Changes in Equity
For the Year Ended December 31, 2012

				Reserves			
	Preferred Stock	Common Stock	Share Premium	Property Revaluation Reserve	Reserve for Own Shares	Retained Earnings	Total Equity Attributable to Owners
Balance, January 1, 2012	€300,000	€800,000	€1,325,000	€ 0	(€36,000)	€ 852,700	€3,241,700
Profit for the year						421,600	421,600
Other comprehensive income							
Property revaluation (gain)				44,800			44,800
Total comprehensive income				€44,800		€ 421,600	€ 466,400
Contributions by and distributions to owners							
Dividends on preferred stock						(30,000)	(30,000)
Dividends on common stock						(44,000)	(44,000)
Issuance of additional common stock		100,000	175,000				275,000
Purchase of own shares					(10,000)		(10,000)
Total contributions and distributions to owners	€ 0	€100,000	€ 175,000	€ 0	(€10,000)	(€ 74,000)	€ 191,000
Balance, December 31, 2012	€300,000	€900,000	€1,500,000	€44,800	(€46,000)	€1,200,300	€3,899,100

"Reserves", see Notes 9 and 11.

11. The statement of changes in equity under IFRS is similar to U.S. GAAP. For example, both IFRS and GAAP include other comprehensive income items and total comprehensive income disclosures in the statement of changes in equity. In this illustration, treasury stock is included as part a reserve (Reserve for Own Shares). As discussed in Note 9, under U.S. GAAP the term "reserve" denotes a liability.

Discussion Questions

1. Contrast U.S. GAAP income statement terms with their differing IFRS terms, starting with the name of the statement.
2. What is the difference between classifying an expense by nature or function?
3. If a functional expense classification is used for the statement of comprehensive income, what must also be disclosed?
4. What is an example of "Other comprehensive income"? How would it be reported on the statement of comprehensive income?
5. How is the term "provision" used differently under IFRS than under U.S. GAAP?
6. What are two main differences in inventory valuation under IFRS compared to U.S. GAAP?
7. What is a "biological asset"?
8. What is the most significant IFRS departure from U.S. GAAP for valuing property, plant, and equipment?
9. What is a "share premium"?
10. How is the term "reserve" used under IFRS, and how does it differ from its meaning under U.S. GAAP?
11. How is treasury stock reported under IFRS? How does this differ from its treatment under U.S. GAAP?

IFRS Activity 1

IFRS

Unilever Group is a global company that markets a wide variety of products, including Lever® soap, Breyer's® ice cream, and Hellman's® mayonnaise. The income statement and statement of comprehensive income for the Dutch company, Unilever Group is shown below.

Unilever Group
Consolidated Income Statement
For the Year Ended December 31, 2009
(in millions of euros)

Turnover	€39,823
Operating profit	5,020
After (charging)/crediting:	
Restructuring	(897)
Business disposals, impairments, other	29
Net finance costs	(593)
Finance income	75
Finance costs	(504)
Pensions and similar obligations	(164)
Share of net profit/(loss) of joint ventures	111
Share of net profit/(loss) of associates	4
Other income from non-current investments	374
Profit before taxation	€ 4,916
Taxation	(1,257)
Net profit	€ 3,659
Earnings per share—basic	€ 1.21
Earnings per share—diluted	€ 1.17

Consolidated Statement of Comprehensive Income
For the Year Ended December 31, 2009

Fair value gains (losses), net of tax	€ 65
Actuarial gains (losses) on pensions, net of tax	18
Currency retranslation gains (losses), net of tax	396
Net income (expense) recognized directly into equity	€ 519
Net profit	3,659
Total comprehensive income	€4,178

a. What do you think is meant by "turnover"?

b. How does Unilever's income statement presentation differ significantly from that of Mornin' Joe?

c. How is the total for net finance costs presented differently than would be typically found under U.S. GAAP?

d. What are two ways in which other comprehensive income items can be disclosed under IFRS, and how does this differ from U.S. GAAP?

IFRS Activity 2

The following is the consolidated statement of financial position for LVMH, a French company that markets the Louis Vuitton® and Moët Hennessy® brands.

LVMH
Statement of Financial Position
December 31, 2009
(in millions of euros)

Assets	
Brands and other intangible assets—net	€ 8,697
Goodwill—net	4,270
Property, plant, and equipment—net	6,140
Investment in associates	213
Non-current available for sale financial assets	540
Other non-current assets	750
Deferred tax	521
Non-current assets	€21,131
Inventories	€ 5,644
Trade accounts receivable	1,455
Income taxes receivable	217
Other current assets	1,213
Cash and cash equivalents	2,446
Current assets	€10,975
TOTAL ASSETS	€32,106
Liabilities and Equity	
Share capital	€ 147
Share premium	1,763
Treasury shares	(929)
Revaluation reserves	871
Other reserves	10,684
Net profit, group share	1,755
Equity, group share	€13,796
Minority interests	989
Total equity	€14,785
Long-term borrowings	€ 4,077
Provisions	990
Deferred tax	3,117
Other non-current liabilities	3,089
Total non-current liabilities	€11,273
Short-term borrowings	1,708
Trade accounts payable	1,911
Income taxes payable	221
Provisions	334
Other current liabilities	1,874
Total current liabilities	€ 6,048
TOTAL LIABILITIES AND EQUITY	€32,106

a. Identify presentation differences between the balance sheet of LVMH and a balance sheet prepared under U.S. GAAP. Use the Mornin' Joe balance sheet on page 712 as an example of a U.S. GAAP balance sheet. (Ignore minority interests.)

b. Compare the terms used in this balance sheet with the terms used by Mornin' Joe (page 712), using the table below.

LVMH Term	U.S. GAAP Term as Used by Mornin' Joe
Statement of financial position	
Share capital	
Share premium	
Other reserves	
Provisions	

c. What does the "Revaluation reserves" in the equity section of the balance sheet represent?

IFRS Activity 3

IFRS

Under U.S. GAAP, LIFO is an acceptable inventory method. Listed below is financial statement information for three companies that use LIFO. All table numbers are in millions of dollars.

	LIFO Inventory	FIFO Inventory (from footnotes)	Impact on Net Income from Using LIFO Rather than FIFO (from footnotes)	Total Current Assets	Net Income as Reported
ExxonMobil	$11,553	$28,653	$207	$55,235	$19,280
Kroger	4,902	5,705	(49)	7,450	70
Ford Motor*	5,450	6,248	33	40,560	1,212

*Autos and trucks only

Assume these companies adopted IFRS, and thus were required to use FIFO, rather than LIFO. Prepare a table with the following columns as shown below.

(1) Difference between FIFO and LIFO inventory valuation.

(2) Revised IFRS net income using FIFO.

(3) Difference between FIFO and LIFO inventory valuation as a percent of total current assets.

(4) Revised IFRS net income as a percent of the reported net income.

(1)	(2)	(3)	(4)
FIFO less LIFO	IFRS Net Income	$\frac{\text{(FIFO less LIFO)}}{\text{Total Current Assets}}$	$\frac{\text{IFRS Net Income Col. (2)}}{\text{Reported Net Income}}$

a. Complete the table.

b. For which company would a change to IFRS for inventory valuation have the largest percentage impact on total current assets (Col. 3)?

c. For which company would a change to IFRS for inventory valuation have the largest percentage impact on net income (Col. 4)?

d. Why might Kroger have a negative impact on net income from using LIFO, while the other two companies have a positive impact on net income from using LIFO?

CHAPTER

16

Photo/Elaine Thompson

Statement of Cash Flows

Jones Soda Co.

Suppose you were to receive $100 from an event. Would it make a difference what the event was? Yes, it would! If you received $100 for your birthday, then it's a gift. If you received $100 as a result of working part time for a week, then it's the result of your effort. If you received $100 as a loan, then it's money that you will have to pay back in the future. If you received $100 as a result of selling your iPod, then it's the result of giving up something tangible. Thus, $100 received can be associated with different types of events, and these events have different meanings to you, and different implications for your future. You would much rather receive a $100 gift than take out a $100 loan. Likewise, company stakeholders view inflows and outflows of cash differently depending on their source.

Companies are required to report information about the events causing a change in cash over a period of time. This information is reported in the statement of cash flows. One such company is **Jones Soda Co.** Jones began in the late 1980s as an alternative beverage company, known for its customer-provided labels, unique flavors, and support for extreme sports. You have probably seen Jones Soda at **Barnes & Noble**, **Panera Bread**, or **Starbucks**, or maybe sampled some of its unique flavors, such as Fufu Berry®, Blue Bubblegum®, or Lemon Drop®. As with any company, cash is important to Jones Soda. Without cash, Jones would be unable to expand its brands, distribute its product, support extreme sports, or provide a return for its owners. Thus, its managers are concerned about the sources and uses of cash.

In previous chapters, we have used the income statement, balance sheet, statement of retained earnings, and other information to analyze the effects of management decisions on a business's financial position and operating performance. In this chapter, we focus on the events causing a change in cash by presenting the preparation and use of the statement of cash flows.

Learning Objectives

	After studying this chapter, you should be able to:	Example Exercises	Page
OBJ 1	Describe the cash flow activities reported in the statement of cash flows.		
	Reporting Cash Flows		
	Cash Flows from Operating Activities		
	Cash Flows from Investing Activities		
	Cash Flows from Financing Activities	EE 16-1	727
	Noncash Investing and Financing Activities		
	No Cash Flow per Share		
OBJ 2	Prepare a statement of cash flows, using the indirect method.		
	Statement of Cash Flows—The Indirect Method		
	Retained Earnings		
	Adjustments to Net Income	EE 16-2, 3, 4	731, 734, 735
	Dividends		
	Common Stock		
	Bonds Payable		
	Building		
	Land	EE 16-5	738
	Preparing the Statement of Cash Flows		
OBJ 3	Prepare a statement of cash flows, using the direct method.		
	Statement of Cash Flows—The Direct Method		
	Cash Received from Customers	EE 16-6	740
	Cash Payments for Merchandise	EE 16-7	741
	Cash Payments for Operating Expenses		
	Gain on Sale of Land		
	Interest Expense		
	Cash Payments for Income Taxes		
	Reporting Cash Flows from Operating Activities—Direct Method		
OBJ 4	Describe and illustrate the use of free cash flow in evaluating a company's cash flow.		
	Financial Analysis and Interpretation: Free Cash Flow	EE 16-8	745

At a Glance 16 Page 749

OBJ 1 Describe the cash flow activities reported in the statement of cash flows.

Reporting Cash Flows

The **statement of cash flows** reports a company's cash inflows and outflows for a period.[1] The statement of cash flows provides useful information about a company's ability to do the following:

1. Generate cash from operations
2. Maintain and expand its operating capacity
3. Meet its financial obligations
4. Pay dividends

The statement of cash flows is used by managers in evaluating past operations and in planning future investing and financing activities. It is also used by external users such as investors and creditors to assess a company's profit potential and ability to pay its debt and pay dividends.

The statement of cash flows reports three types of cash flow activities as follows:

Cash flows from operating activities are cash flows from transactions that affect the net income of the company.

Example: Purchase and sale of merchandise by a retailer.

Cash flows from investing activities are cash flows from transactions that affect investments in the noncurrent assets of the company.

Example: Purchase and sale of fixed assets, such as equipment and buildings.

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[1] As used in this chapter, *cash* refers to cash and cash equivalents. Examples of cash equivalents include short-term, highly liquid investments, such as money market accounts, bank certificates of deposit, and U.S. Treasury bills.

Cash flows from financing activities are cash flows from transactions that affect the debt and equity of the company.

Example: Issuing or retiring equity and debt securities.

The cash flows are reported in the statement of cash flows as follows:

Cash flows from operating activities	$XXX
Cash flows from investing activities	XXX
Cash flows from financing activities	XXX
Net increase or decrease in cash for the period	$XXX
Cash at the beginning of the period	XXX
Cash at the end of the period	$XXX

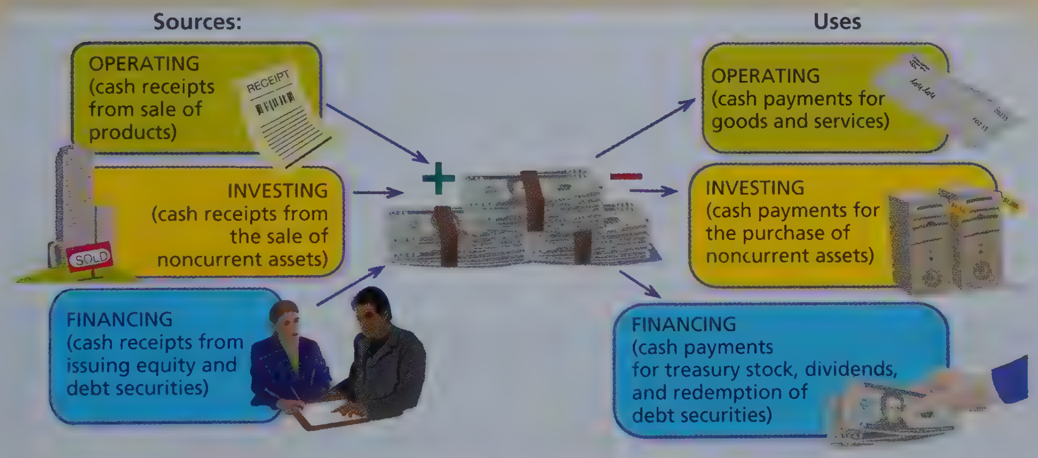
The ending cash on the statement of cash flows equals the cash reported on the company's balance sheet at the end of the year.

Exhibit 1 illustrates the sources (increases) and uses (decreases) of cash by each of the three cash flow activities. A *source* of cash causes the cash flow to increase and is called a *cash inflow*. A *use* of cash causes cash flow to decrease and is called *cash outflow*.

Note:
The statement of cash flows reports cash flows from operating, investing, and financing activities.

EXHIBIT 1

Cash Flows



Cash Flows from Operating Activities

Cash flows from operating activities is the cash inflow or outflow from a company's day-to-day operations. Companies may select one of two alternative methods for reporting cash flows from operating activities in the statement of cash flows:

1. The direct method
2. The indirect method

Both methods result in the same amount of cash flows from operating activities. They differ in the way they report cash flow from operating activities as discussed below.

The **direct method** reports operating cash inflows (receipts) and cash outflows (payments) as follows:

Cash flows from operating activities:		
Cash received from customers		$XXX
Less: Cash payments for merchandise	$XXX	
Cash payments for operating expenses	XXX	
Cash payments for interest	XXX	
Cash payments for income taxes	XXX	XXX
Net cash flows from operating activities		$XXX

The primary operating cash inflow is cash received from customers. The primary operating cash outflows are cash payments for merchandise, operating expenses, interest, and income tax payments. The cash received from operating activities less the cash payments for operating activities is the net cash flow from operating activities.

The primary advantage of the direct method is that it *directly* reports cash receipts and cash payments in the statement of cash flows. Its primary disadvantage is that these data may not be readily available in the accounting records. Thus, the direct method is normally more costly to prepare and, as a result, is used by less than 1% of companies.[2]

The **indirect method** reports cash flows from operating activities by beginning with net income and adjusting it for revenues and expenses that do not involve the receipt or payment of cash as follows:

Cash flows from operating activities:		
Net income	$XXX	
Adjustments to reconcile net income to net cash flow from operating activities	XXX	
Net cash flow from operating activities		$XXX

The adjustments to reconcile net income to net cash flow from operating activities include such items as depreciation and gains or losses on fixed assets. Changes in current operating assets and liabilities such as accounts receivable or accounts payable are also added or deducted depending on their effect on cash flows. In effect, these additions and deductions adjust net income, which is reported on an accrual accounting basis, to cash flows from operating activities, which uses a cash basis.

A primary advantage of the indirect method is that it reconciles the differences between net income and net cash flows from operations. In doing so, it shows how net income is related to the ending cash balance that is reported on the balance sheet.

Because the data are readily available, the indirect method is less costly to prepare than the direct method. As a result, over 99% of companies use the indirect method of reporting cash flows from operations.

Exhibit 2 illustrates the Cash Flows from Operating Activities section of the statement of cash flows for **NetSolutions**. Exhibit 2 shows the direct and indirect methods using the NetSolutions data from Chapter 1. As Exhibit 2 illustrates, both methods report the same amount of net cash flow from operating activities, $2,900.

EXHIBIT 2 **Cash Flow from Operations: Direct and Indirect Methods—NetSolutions**

Direct Method

Cash flows from operating activities:	
Cash received from customers	$7,500
Deduct cash payments for expenses and payments to creditors	4,600
Net cash flow from operating activities	$2,900

Indirect Method

Cash flows from operating activities:	
Net income	$3,050
Add increase in accounts payable	400
	$3,450
Deduct increase in supplies	550
Net cash flow from operating activities	$2,900

the same

Cash Flows from Investing Activities

Cash flows from investing activities show the cash inflows and outflows related to changes in a company's long-term assets. Cash flows from investing activities are reported on the statement of cash flows as follows:

Cash flows from investing activities:		
Cash inflows from investing activities	$XXX	
Less cash used for investing activities	XXX	
Net cash flows from investing activities		$XXX

In October 2008, the U.S. government invested $250 billion of cash into U.S. banks to help stabilize the financial system.

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[2] *Accounting Trends & Techniques*, AICPA, 2008 edition.

Cash inflows from investing activities normally arise from selling fixed assets, investments, and intangible assets. Cash outflows normally include payments to purchase fixed assets, investments, and intangible assets.

Cash Flows from Financing Activities

Cash flows from financing activities show the cash inflows and outflows related to changes in a company's long-term liabilities and stockholders' equity. Cash flows from financing activities are reported on the statement of cash flows as follows:

Cash flows from financing activities:		
Cash inflows from financing activities	$XXX	
Less cash used for financing activities	XXX	
Net cash flows from financing activities		$XXX

Cash inflows from financing activities normally arise from issuing long-term debt or equity securities. For example, issuing bonds, notes payable, preferred stock, and common stock creates cash inflows from financing activities. Cash outflows from financing activities include paying cash dividends, repaying long-term debt, and acquiring treasury stock.

Noncash Investing and Financing Activities

A company may enter into transactions involving investing and financing activities that do not *directly* affect cash. For example, a company may issue common stock to retire long-term debt. Although this transaction does not directly affect cash, it does eliminate future cash payments for interest and for paying the bonds when they mature. Because such transactions *indirectly* affect cash flows, they are reported in a separate section of the statement of cash flows. This section usually appears at the bottom of the statement of cash flows.

In fiscal 2009, Apple, Inc., generated $10.1 billion in cash flow from operating activities.

Example Exercise 16-1 Classifying Cash Flows

OBJ. 1

Identify whether each of the following would be reported as an operating, investing, or financing activity in the statement of cash flows.

a. Purchase of patent
b. Payment of cash dividend
c. Disposal of equipment
d. Cash sales
e. Purchase of treasury stock
f. Payment of wages expense

Follow My Example 16-1

a. Investing
b. Financing
c. Investing
d. Operating
e. Financing
f. Operating

Practice Exercises: **PE 16-1A, PE 16-1B**

No Cash Flow per Share

Cash flow per share is sometimes reported in the financial press. As reported, cash flow per share is normally computed as *cash flow from operations per share*. However, such reporting may be misleading because of the following:

1. Users may misinterpret cash flow per share as the per-share amount available for dividends. This would not be the case if the cash generated by operations is required for repaying loans or for reinvesting in the business.
2. Users may misinterpret cash flow per share as equivalent to (or better than) earnings per share.

For these reasons, the financial statements, including the statement of cash flows, should not report cash flow per share.

OBJ. 2 Prepare a statement of cash flows, using the indirect method.

Statement of Cash Flows—The Indirect Method

The indirect method of reporting cash flows from operating activities uses the logic that a change in any balance sheet account (including cash) can be analyzed in terms of changes in the other balance sheet accounts. Thus, by analyzing changes in noncash balance sheet accounts, any change in the cash account can be *indirectly* determined.

To illustrate, the accounting equation can be solved for cash as shown below.

Assets = Liabilities + Stockholders' Equity
Cash + Noncash Assets = Liabilities + Stockholders' Equity
Cash = Liabilities + Stockholders' Equity − Noncash Assets

Therefore, any change in the cash account can be determined by analyzing changes in the liability, stockholders' equity, and noncash asset accounts as shown below.

Change in Cash = *Change* in Liabilities + *Change* in Stockholders' Equity
− *Change* in Noncash Assets

Under the indirect method, there is no order in which the balance sheet accounts must be analyzed. However, net income (or net loss) is the first amount reported on the statement of cash flows. Since net income (or net loss) is a component of any change in Retained Earnings, the first account normally analyzed is Retained Earnings.

To illustrate the indirect method, the income statement and comparative balance sheets for Rundell Inc. shown in Exhibit 3 are used. Ledger accounts and other data supporting the income statement and balance sheet are presented as needed.[3]

EXHIBIT 3 Income Statement and Comparative Balance Sheet

Rundell Inc.
Income Statement
For the Year Ended December 31, 2012

Sales		$1,180,000
Cost of merchandise sold		790,000
Gross profit		$ 390,000
Operating expenses:		
Depreciation expense	$ 7,000	
Other operating expenses	196,000	
Total operating expenses		203,000
Income from operations		$ 187,000
Other income:		
Gain on sale of land	$ 12,000	
Other expense:		
Interest expense	8,000	4,000
Income before income tax		$ 191,000
Income tax expense		83,000
Net income		$ 108,000

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[3] An appendix that discusses using a spreadsheet (work sheet) as an aid in assembling data for the statement of cash flows is presented at the end of this chapter. This appendix illustrates the use of this spreadsheet in reporting cash flows from operating activities using the indirect method.

EXHIBIT 3 **Income Statement and Comparative Balance Sheet *(concluded)***

Rundell Inc.
Comparative Balance Sheet
December 31, 2012 and 2011

	2012	2011	Increase Decrease*
Assets			
Cash	$ 97,500	$ 26,000	$ 71,500
Accounts receivable (net)	74,000	65,000	9,000
Inventories	172,000	180,000	8,000*
Land	80,000	125,000	45,000*
Building	260,000	200,000	60,000
Accumulated depreciation—building	(65,300)	(58,300)	7,000**
Total assets	$618,200	$537,700	$ 80,500
Liabilities			
Accounts payable (merchandise creditors)	$ 43,500	$ 46,700	$ 3,200*
Accrued expenses payable (operating expenses)	26,500	24,300	2,200
Income taxes payable	7,900	8,400	500*
Dividends payable	14,000	10,000	4,000
Bonds payable	100,000	150,000	50,000*
Total liabilities	$191,900	$239,400	$ 47,500*
Stockholders' Equity			
Common stock ($2 par)	$ 24,000	$ 16,000	$ 8,000
Paid-in capital in excess of par	120,000	80,000	40,000
Retained earnings	282,300	202,300	80,000
Total stockholders' equity	$426,300	$298,300	$128,000
Total liabilities and stockholders' equity	$618,200	$537,700	$ 80,500

**There is a $7,000 increase to Accumulated Depreciation—Building, which is a contra asset account. As a result, the $7,000 increase in this account must be subtracted in summing to the increase in Total assets of $80,500.

Retained Earnings

The comparative balance sheet for Rundell Inc. shows that retained earnings increased $80,000 during the year. The retained earnings account shown below indicates how this change occurred.

Account *Retained Earnings* Account No.

Date		Item	Debit	Credit	Balance Debit	Balance Credit
2012 Jan.	1	Balance				202,300
Dec.	31	Net income		108,000		310,300
	31	Cash dividends	28,000			282,300

The retained earnings account indicates that the $80,000 ($108,000 − $28,000) change resulted from net income of $108,000 and cash dividends of $28,000. The net income of $108,000 is the first amount reported in the Cash Flows from Operating Activities section.

Adjustments to Net Income

The net income of $108,000 reported by Rundell Inc. does not equal the cash flows from operating activities for the period. This is because net income is determined using the accrual method of accounting.

Under the accrual method of accounting, revenues and expenses are recorded at different times from when cash is received or paid. For example, merchandise may be sold on account and the cash received at a later date. Likewise, insurance premiums may be paid in the current period, but expensed in a following period.

Thus, under the indirect method, adjustments to net income must be made to determine cash flows from operating activities. The typical adjustments to net income are shown in Exhibit 4.[4]

Net income is normally adjusted to cash flows from operating activities using the following steps:

Step 1. Expenses that do not affect cash are added. Such expenses decrease net income but do not involve cash payments and, thus, are added to net income.

Examples: *Depreciation* of fixed assets and *amortization* of intangible assets are added to net income.

EXHIBIT 4

Adjustments to Net Income (Loss) Using the Indirect Method

		Increase (Decrease)
	Net income (loss)	$ XXX
	Adjustments to reconcile net income to net cash flow from operating activities:	
Step 1	Depreciation of fixed assets	XXX
	Amortization of intangible assets	XXX
Step 2	Losses on disposal of assets	XXX
	Gains on disposal of assets	(XXX)
Step 3	Changes in current operating assets and liabilities:	
	Increases in noncash current operating assets	(XXX)
	Decreases in noncash current operating assets	XXX
	Increases in current operating liabilities	XXX
	Decreases in current operating liabilities	(XXX)
	Net cash flow from operating activities	$ XXX or $(XXX)

Subtract	Add
Increases in accounts receivable	Decreases in accounts receivable
Increases in inventory	Decreases in inventory
Increases in prepaid expenses	Decreases in prepaid expenses
Decreases in accounts payable	Increases in accounts payable
Decreases in accrued expenses payable	Increases in accrued expenses payable
Decreases in income taxes payable	Increases in income taxes payable

Step 2. Losses and gains on disposal of assets are added or deducted. The disposal (sale) of assets is an investing activity rather than an operating activity. However, such losses and gains are reported as part of net income. As a result, any *losses* on disposal of assets are *added* back to net income. Likewise, any *gains* on disposal of assets are *deducted* from net income.

Example: Land costing $100,000 is sold for $90,000. The loss of $10,000 is added back to net income.

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[4] Other items that also require adjustments to net income to obtain cash flows from operating activities include amortization of bonds payable discounts (add), losses on debt retirement (add), amortization of bonds payable premiums (deduct), and gains on retirement of debt (deduct).

Step 3. Changes in current operating assets and liabilities are added or deducted as follows:

Increases in noncash current operating assets are deducted.
Decreases in noncash current operating assets are added.
Increases in current operating liabilities are added.
Decreases in current operating liabilities are deducted.

Example: A sale of $10,000 on account increases sales, accounts receivable, and net income by $10,000. However, cash is not affected. Thus, an increase in accounts receivable of $10,000 is deducted. Similar adjustments are required for the changes in the other current asset and liability accounts such as inventory, prepaid expenses, accounts payable, accrued expenses payable, and income taxes payable as shown in Exhibit 4.

Example Exercise 16-2 Adjustments to Net Income—Indirect Method

OBJ. 2

Omni Corporation's accumulated depreciation increased by $12,000, while $3,400 of patents were amortized between balance sheet dates. There were no purchases or sales of depreciable or intangible assets during the year. In addition, the income statement showed a gain of $4,100 from the sale of land. Reconcile Omni's net income of $50,000 to net cash flow from operating activities.

Follow My Example 16-2

Net income	$50,000
Adjustments to reconcile net income to net cash flow from operating activities:	
Depreciation	12,000
Amortization of patents	3,400
Gain from sale of land	(4,100)
Net cash flow from operating activities	$61,300

Practice Exercises: **PE 16-2A, PE 16-2B**

To illustrate, the Cash Flows from Operating Activities section of Rundell's statement of cash flows is shown in Exhibit 5. Rundell's net income of $108,000 is converted to cash flows from operating activities of $100,500 as follows:

EXHIBIT 5

Cash Flows from Operating Activities—Indirect Method

	Cash flows from operating activities:		
	Net income	$108,000	
	Adjustments to reconcile net income to net cash flow from operating activities:		
Step 1	Depreciation	7,000	
Step 2	Gain on sale of land	(12,000)	
	Changes in current operating assets and liabilities:		
	Increase in accounts receivable	(9,000)	
	Decrease in inventories	8,000	
Step 3	Decrease in accounts payable	(3,200)	
	Increase in accrued expenses payable	2,200	
	Decrease in income taxes payable	(500)	
	Net cash flow from operating activities		$100,500

Step 1. Add depreciation of $7,000.
Analysis: The comparative balance sheet in Exhibit 3 indicates that Accumulated Depreciation—Building increased by $7,000. The account, shown on the following page, indicates that depreciation for the year was $7,000 for the building.

Account *Accumulated Depreciation—Building* Account No.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012 Jan.	1	Balance				58,300
Dec.	31	Depreciation for year		7,000		65,300

Step 2. Deduct the gain on the sale of land of $12,000.

Analysis: The income statement in Exhibit 3 reports a gain from the sale of land of $12,000. The proceeds, which include the gain, are reported in the Investing section of the statement of cash flows.[5] Thus, the gain of $12,000 is deducted from net income in determining cash flows from operating activities.

Step 3. Add and deduct changes in current operating assets and liabilities.

Analysis: The increases and decreases in the current operating asset and current liability accounts are shown below.

Accounts	December 31 2012	December 31 2011	Increase Decrease*
Accounts Receivable (net)	$ 74,000	$ 65,000	$9,000
Inventories	172,000	180,000	8,000*
Accounts Payable (merchandise creditors)	43,500	46,700	3,200*
Accrued Expenses Payable (operating expenses)	26,500	24,300	2,200
Income Taxes Payable	7,900	8,400	500*

Accounts receivable (net): The $9,000 increase is deducted from net income. This is because the $9,000 increase in accounts receivable indicates that sales on account were $9,000 more than the cash received from customers. Thus, sales (and net income) includes $9,000 that was not received in cash during the year.

Business Connection

CASH CRUNCH!

Automobile manufacturers such as Chrysler Group LLC sell their cars and trucks through a network of independently owned and operated dealerships. The vehicles are sold to the dealerships on credit by issuing a trade receivable, which is repaid to Chrysler Group LLC after the vehicles are sold by the dealership. The economic crisis of 2008 created a slump in car sales that lasted well into 2009. By spring 2009, Chrysler dealers around the world found themselves with large inventories of unsold cars and trucks, resulting in their inability to repay their trade receivables from Chrysler Group LLC. This led to a significant decline in Chrysler's cash flow from operating activities that forced the company into a financial restructuring. Ultimately, the company was rescued by a significant investment (cash inflow from financing activities) from Fiat and the U.S. and Canadian governments.

Source: "Chrysler Restructuring Plan for Long-Term Viability," Chrysler Group LLC, February 17, 2009.

Inventories: The $8,000 decrease is added to net income. This is because the $8,000 decrease in inventories indicates that the cost of merchandise *sold* exceeds the cost of the merchandise *purchased* during the year by $8,000. In other words, cost of merchandise sold includes $8,000 of goods from inventory that was not purchased (used cash) during the year.

Accounts payable (merchandise creditors): The $3,200 decrease is deducted from net income. This is because a decrease in accounts payable indicates that the cash *payments* to merchandise creditors exceed the merchandise *purchased on account* by $3,200. Therefore, cost of merchandise sold is $3,200 less than the cash paid to merchandise creditors during the year.

---

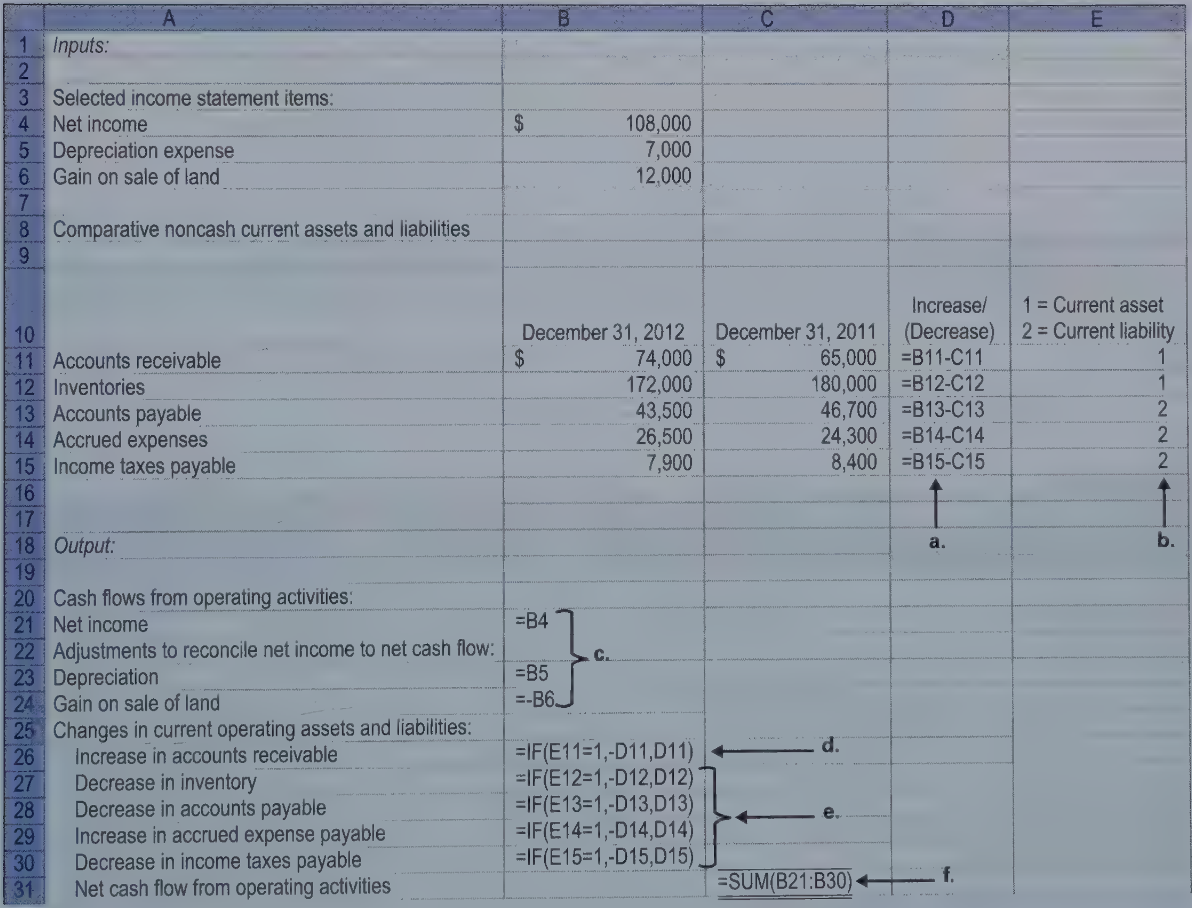
[5] The reporting of the proceeds (cash flows) from the sale of land as part of investing activities is discussed later in this chapter.

Accrued expenses payable (operating expenses): The $2,200 increase is added to net income. This is because an increase in accrued expenses payable indicates that operating expenses exceed the cash payments for operating expenses by $2,200. In other words, operating expenses reported on the income statement include $2,200 that did not require a cash outflow during the year.

Income taxes payable: The $500 decrease is deducted from net income. This is because a decrease in income taxes payable indicates that taxes paid exceed the amount of taxes incurred during the year by $500. In other words, the amount reported on the income statement for income tax expense is less than the amount paid by $500.

excel success

Spreadsheet software can be used to develop the complete statement of cash flows using the worksheet approach illustrated in the appendix to this chapter. Here we illustrate the use of spreadsheet software for developing the cash flows from operating activities section of the statement of cash flows.



	A	B	C	D	E
1	*Inputs:*				
2					
3	Selected income statement items:				
4	Net income	$ 108,000			
5	Depreciation expense	7,000			
6	Gain on sale of land	12,000			
7					
8	Comparative noncash current assets and liabilities				
9					
10		December 31, 2012	December 31, 2011	Increase/ (Decrease)	1 = Current asset 2 = Current liability
11	Accounts receivable	$ 74,000	$ 65,000	=B11-C11	1
12	Inventories	172,000	180,000	=B12-C12	1
13	Accounts payable	43,500	46,700	=B13-C13	2
14	Accrued expenses	26,500	24,300	=B14-C14	2
15	Income taxes payable	7,900	8,400	=B15-C15	2
16					
17					
18	*Output:*				
19					
20	Cash flows from operating activities:				
21	Net income	=B4			
22	Adjustments to reconcile net income to net cash flow:				
23	Depreciation	=B5			
24	Gain on sale of land	=-B6			
25	Changes in current operating assets and liabilities:				
26	Increase in accounts receivable	=IF(E11=1,-D11,D11)			
27	Decrease in inventory	=IF(E12=1,-D12,D12)			
28	Decrease in accounts payable	=IF(E13=1,-D13,D13)			
29	Increase in accrued expense payable	=IF(E14=1,-D14,D14)			
30	Decrease in income taxes payable	=IF(E15=1,-D15,D15)			
31	Net cash flow from operating activities		=SUM(B21:B30)		

The **input** section of the spreadsheet includes the selected income statement items that are required on the cash flows from operating activities. These include the net income, depreciation expense, and gain on sale of land in this example, B4, B5, and B6.

The input section also contains the comparative noncash current assets and current liabilities from the balance sheet. Begin by computing the Increase/Decrease in current assets and current liabilities in the input section:

a. Enter in D11 the formula for the increase or decrease in accounts receivable, =B11-C11. Copy this formula for the remaining current assets and liabilities.

b. Enter into cells E11 through E16, a number "1" for current assets and a number "2" for current liabilities. This is termed an *indicator* variable, which we will use in a formula below. Indicator variables can be any number. For example, 0 or 1 would also work.

The **output** section contains the cash flows from operating activities, which is the first section of the complete statement of cash flows. The output section is prepared using cell references from the input section. It is important to insert cell references with the correct sign.

c. Enter in cell B21 the cell reference for net income, =B4. Enter in cell B23 the cell reference for depreciation, =B5. Enter in cell B24 the cell reference for gain on sale of land as a minus, =-B6.

d. Enter in cell B26 a formula for calculating the impact of changes in current assets and current liabilities on net income in determining net cash flows from operating activities. We will use the =IF function to develop a formula that works for all current items. The =IF function is used to program your spreadsheet to test for conditions illustrated as follows:

B26: =IF(E11=1,-D11,D11)

The logical condition that is being tested. Must include a logical operator, such as =, <, or >. Is E11=1? Or in English, is this reference (E11) a current asset?

The value that is entered into cell B26 if the answer to the logical statement is True. In this case, if the reference (E11) is a current asset, then -D11 is entered in B26.

The value that is entered in cell B26 if the answer to the logical statement is False. In this case, if reference (E11) is not a current asset (thus, a current liability), then D11 is entered in B26.

After you enter this formula in cell B26, you should see that -D11, or (9,000), is entered in cell B26. This is what we want. For current assets, increases are subtracted and decreases are added, when adjusting net income to cash flows from operating activities. For the current liabilities, the increases and decreases keep their sign in adjusting net income to cash flows from operating activities. Thus, we have created a single formula that will work for all current assets and current liabilities. We only needed to add the indicator variable in the input section for the =IF function to work.

We can now copy this formula to the remaining current assets and liabilities:

e. Copy B26 to B27:B30.

f. Enter in C31 the formula to sum cells B21:B30, =SUM(B21:B30).

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Example Exercise 16-3 Changes in Current Operating Assets and Liabilities—Indirect Method

OBJ 2

Victor Corporation's current operating assets and liabilities from the company's comparative balance sheet were as follows:

	Dec. 31, 2013	Dec. 31, 2012
Accounts receivable	$ 6,500	$ 4,900
Inventory	12,300	15,000
Accounts payable	4,800	5,200
Dividends payable	5,000	4,000

Adjust Victor's net income of $70,000 for changes in operating assets and liabilities to arrive at cash flows from operating activities.

Follow My Example 16-3

Net income	$70,000
Adjustments to reconcile net income to net cash flow from operating activities:	
Changes in current operating assets and liabilities:	
Increase in accounts receivable	(1,600)
Decrease in inventory	2,700
Decrease in accounts payable	(400)
Net cash flow from operating activities	$70,700

Note: The change in dividends payable impacts the cash paid for dividends, which is disclosed under financing activities.

Practice Exercises: **PE 16-3A, PE 16-3B**

Using the preceding analyses, Rundell's net income of $108,000 is converted to cash flows from operating activities of $100,500 as shown in Exhibit 5, on page 731.

Integrity, Objectivity, and Ethics in Business

CREDIT POLICY AND CASH FLOW

One would expect customers to pay for products and services sold on account. Unfortunately, that is not always the case. Collecting accounts receivable efficiently is the key to turning a current asset into positive cash flow. Most entrepreneurs would rather think about the exciting aspects of their business—such as product development, marketing, sales, and advertising—than credit collection. This can be a mistake. Hugh McHugh of **Overhill Flowers, Inc.**, decided that he would have no more trade accounts after dealing with Christmas orders that weren't paid for until late February, or sometimes not paid at all. As stated by one collection service, "One thing business owners always tell me is that they never thought about [collections] when they started their own business." To the small business owner, the collection of accounts receivable may mean the difference between succeeding and failing.

Source: Paulette Thomas, "Making Them Pay: The Last Thing Most Entrepreneurs Want to Think About Is Bill Collection; It Should Be One of the First Things," *The Wall Street Journal*, September 19, 2005, p. R6.

Example Exercise 16-4 Cash Flows from Operating Activities—Indirect Method

OBJ. 2

Omicron Inc. reported the following data:

Net income	$120,000
Depreciation expense	12,000
Loss on disposal of equipment	15,000
Increase in accounts receivable	5,000
Decrease in accounts payable	2,000

Prepare the Cash Flows from Operating Activities section of the statement of cash flows using the indirect method.

Follow My Example 16-4

Cash flows from operating activities:		
Net income	$120,000	
Adjustments to reconcile net income to net cash flow from operating activities:		
Depreciation expense	12,000	
Loss on disposal of equipment	15,000	
Changes in current operating assets and liabilities:		
Increase in accounts receivable	(5,000)	
Decrease in accounts payable	(2,000)	
Net cash flow from operating activities		$140,000

Practice Exercises: **PE 16-4A, PE 16-4B**

Dividends

The retained earnings account of Rundell Inc., shown on page 729, indicates cash dividends of $28,000 declared during the year. However, the dividends payable account, shown below, indicates that only $24,000 of dividends were paid during the year.

Account Dividends Payable **Account No.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012 Jan.	1	Balance				10,000
	10	Cash paid	10,000		—	—
June	20	Dividends declared		14,000		14,000
July	10	Cash paid	14,000		—	—
Dec.	20	Dividends declared		14,000		14,000

Since dividend payments are a financing activity, the dividend payment of $24,000 is reported in the Financing Activities section of the statement of cash flows, as shown below.

Cash flows from financing activities:	
Cash paid for dividends	$24,000

Common Stock

The common stock account increased by $8,000, and the paid-in capital in excess of par—common stock account increased by $40,000, as shown below. These increases were from issuing 4,000 shares of common stock for $12 per share.

Account Common Stock **Account No.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012 Jan.	1	Balance				16,000
Nov.	1	4,000 shares issued for cash		8,000		24,000

Account Paid-In Capital in Excess of Par—Common Stock **Account No.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012 Jan.	1	Balance				80,000
Nov.	1	4,000 shares issued for cash		40,000		120,000

This cash inflow is reported in the Financing Activities section as follows:

Cash flows from financing activities:	
Cash received from sale of common stock	$48,000

Bonds Payable

The bonds payable account decreased by $50,000, as shown below. This decrease is from retiring the bonds by a cash payment for their face amount.

Account *Bonds Payable* Account No.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012						
Jan.	1	Balance				150,000
June	1	Retired by payment of cash at face amount	50,000			100,000

This cash outflow is reported in the Financing Activities section as follows:

Cash flows from financing activities:	
Cash paid to retire bonds payable	$50,000

Building

The building account increased by $60,000, and the accumulated depreciation—building account increased by $7,000, as shown below.

Account *Building* Account No.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012						
Jan.	1	Balance			200,000	
Dec.	27	Purchased for cash	60,000		260,000	

Account *Accumulated Depreciation—Building* Account No.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012						
Jan.	1	Balance				58,300
Dec.	31	Depreciation for the year		7,000		65,300

The purchase of a building for cash of $60,000 is reported as an outflow of cash in the Investing Activities section as follows:

Cash flows from investing activities:	
Cash paid for purchase of building	$60,000

The credit in the accumulated depreciation—building account represents depreciation expense for the year. This depreciation expense of $7,000 on the building was added to net income in determining cash flows from operating activities, as reported in Exhibit 5, on page 731.

Land

The $45,000 decline in the land account was from two transactions, as shown below.

Account *Land* Account No.

Date		Item	Debit	Credit	Balance Debit	Balance Credit
2012 Jan.	1	Balance			125,000	
June	8	Sold for $72,000 cash		60,000	65,000	
Oct.	12	Purchased for $15,000 cash	15,000		80,000	

The June 8 transaction is the sale of land with a cost of $60,000 for $72,000 in cash. The $72,000 proceeds from the sale are reported in the Investing Activities section, as follows:

Cash flows from investing activities:	
Cash received from sale of land	$72,000

The proceeds of $72,000 include the $12,000 gain on the sale of land and the $60,000 cost (book value) of the land. As shown in Exhibit 5, on page 731, the $12,000 gain is deducted from net income in the Cash Flows from Operating Activities section. This is so that the $12,000 cash inflow related to the gain is not included twice as a cash inflow.

The October 12 transaction is the purchase of land for cash of $15,000. This transaction is reported as an outflow of cash in the Investing Activities section, as follows:

Cash flows from investing activities:	
Cash paid for purchase of land	$15,000

Example Exercise 16-5 Land Transactions on the Statement of Cash Flows

OBJ 2

Alpha Corporation purchased land for $125,000. Later in the year, the company sold a different piece of land with a book value of $165,000 for $200,000. How are the effects of these transactions reported on the statement of cash flows?

Follow My Example 16-5

The gain on sale of land is deducted from net income as shown below.

Gain on sale of land	$ (35,000)

The purchase and sale of land is reported as part of cash flows from investing activities as shown below.

Cash received from sale of land	200,000
Cash paid for purchase of land	(125,000)

Practice Exercises: **PE 16-5A, PE 16-5B**

Preparing the Statement of Cash Flows

The statement of cash flows for Rundell Inc. using the indirect method is shown in Exhibit 6. The statement of cash flows indicates that cash increased by $71,500 during the year. The most significant increase in net cash flows ($100,500) was from operating activities. The most significant use of cash ($26,000) was for financing activities. The ending balance of cash on December 31, 2012, is $97,500. This ending cash balance is also reported on the December 31, 2012, balance sheet shown in Exhibit 3 on page 729.

EXHIBIT 6

Statement of Cash Flows—Indirect Method

Rundell Inc.
Statement of Cash Flows
For the Year Ended December 31, 2012

Cash flows from operating activities:			
Net income		$108,000	
Adjustments to reconcile net income to net cash flow from operating activities:			
Depreciation		7,000	
Gain on sale of land		(12,000)	
Changes in current operating assets and liabilities:			
Increase in accounts receivable		(9,000)	
Decrease in inventories		8,000	
Decrease in accounts payable		(3,200)	
Increase in accrued expenses payable		2,200	
Decrease in income taxes payable		(500)	
Net cash flow from operating activities			$100,500
Cash flows from investing activities:			
Cash from sale of land		$ 72,000	
Less: Cash paid to purchase land	$15,000		
Cash paid for purchase of building	60,000	75,000	
Net cash flow used for investing activities			(3,000)
Cash flows from financing activities:			
Cash received from sale of common stock		$ 48,000	
Less: Cash paid to retire bonds payable	$50,000		
Cash paid for dividends	24,000	74,000	
Net cash flow used for financing activities			(26,000)
Increase in cash			$ 71,500
Cash at the beginning of the year			26,000
Cash at the end of the year			$ 97,500

Statement of Cash Flows—The Direct Method

OBJ. 3 Prepare a statement of cash flows, using the direct method.

The direct method reports cash flows from operating activities as follows:

Cash flows from operating activities:		
Cash received from customers		$ XXX
Less: Cash payments for merchandise	$ XXX	
Cash payments for operating expenses	XXX	
Cash payments for interest	XXX	
Cash payments for income taxes	XXX	XXX
Net cash flows from operating activities		$ XXX

The Cash Flows from Investing and Financing Activities sections of the statement of cash flows are exactly the same under both the direct and indirect methods. The amount of cash flows from operating activities is also the same, but the manner in which it is reported is different.

Under the direct method, the income statement is adjusted to cash flows from operating activities as follows:

Income Statement	Adjusted to	Cash Flows from Operating Activities
Sales	→	Cash received from customers
Cost of merchandise sold	→	Cash payments for merchandise
Operating expenses:		
Depreciation expense	N/A	N/A
Other operating expenses	→	Cash payments for operating expenses
Gain on sale of land	N/A	N/A
Interest expense	→	Cash payments for interest
Income tax expense	→	Cash payments for income taxes
Net income	→	Cash flows from operating activities

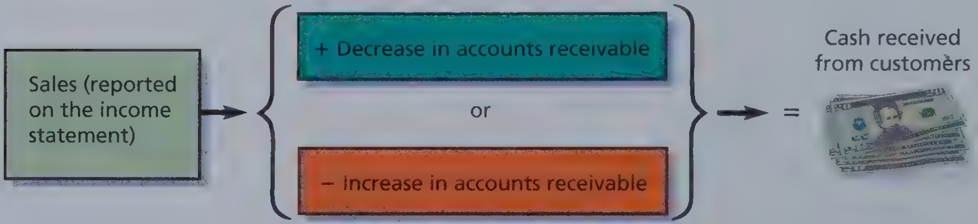
N/A—Not applicable

As shown above, depreciation expense is not adjusted or reported as part of cash flows from operating activities. This is because deprecation expense does not involve a cash outflow. The gain on sale of land is also not adjusted and is not reported as part of cash flows from operating activities. This is because the cash flow from operating activities is determined directly, rather than by reconciling net income. The cash proceeds from the sale of land are reported as an investing activity.

To illustrate the direct method, the income statement and comparative balance sheet for Rundell Inc. shown in Exhibit 3, on pages 728–729, are used.

Cash Received from Customers

The income statement (shown in Exhibit 3) of Rundell Inc. reports sales of $1,180,000. To determine the *cash received from customers*, the $1,180,000 is adjusted for any increase or decrease in accounts receivable. The adjustment is summarized below.



The cash received from customers is $1,171,000, computed as follows:

Sales	$ 1,180,000
Less increase in accounts receivable	9,000
Cash received from customers	$1,171,000

The increase of $9,000 in accounts receivable (shown in Exhibit 3) during 2012 indicates that sales on account exceeded cash received from customers by $9,000. In other words, sales include $9,000 that did not result in a cash inflow during the year. Thus, $9,000 is deducted from sales to determine the *cash received from customers*.

Example Exercise 16-6 Cash Received from Customers—Direct Method

OBJ 3

Sales reported on the income statement were $350,000. The accounts receivable balance declined $8,000 over the year. Determine the amount of cash received from customers.

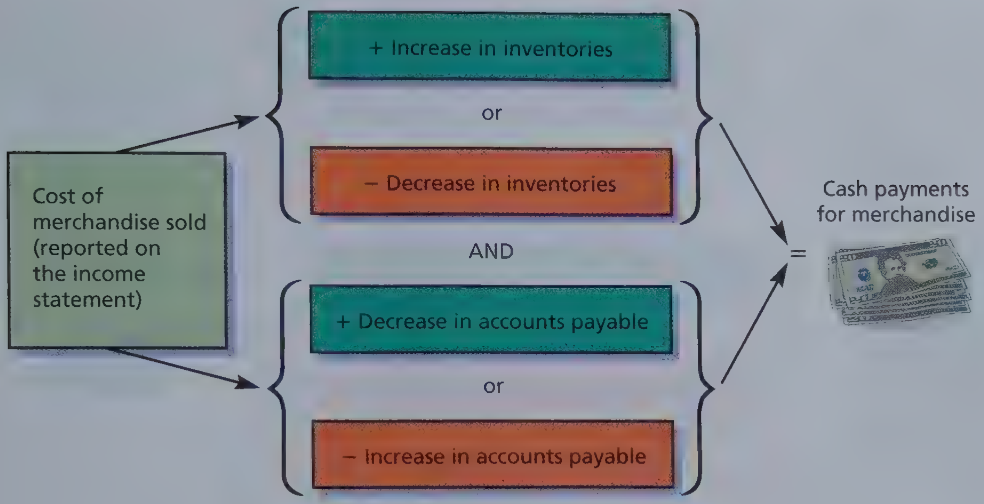
Follow My Example 16-6

Sales	$350,000
Add decrease in accounts receivable	8,000
Cash received from customers	$ 358,000

Practice Exercises: **PE 16-6A, PE 16-6B**

Cash Payments for Merchandise

The income statement (shown in Exhibit 3) for Rundell Inc. reports cost of merchandise sold of $790,000. To determine the *cash payments for merchandise*, the $790,000 is adjusted for any increases or decreases in inventories and accounts payable. Assuming the accounts payable are owed to merchandise suppliers, the adjustment is summarized below.



The cash payments for merchandise are $785,200, computed as follows:

Cost of merchandise sold	$790,000
Deduct decrease in inventories	(8,000)
Add decrease in accounts payable	3,200
Cash payments for merchandise	$785,200

The $8,000 decrease in inventories (from Exhibit 3) indicates that the merchandise sold exceeded the cost of the merchandise purchased by $8,000. In other words, cost of merchandise sold includes $8,000 of goods sold from inventory that did not require a cash outflow during the year. Thus, $8,000 is deducted from the cost of merchandise sold in determining the *cash payments for merchandise.*

The $3,200 decrease in accounts payable (from Exhibit 3) indicates that cash payments for merchandise were $3,200 more than the purchases on account during 2012. Therefore, $3,200 is added to the cost of merchandise sold in determining the *cash payments for merchandise.*

Example Exercise 16-7 Cash Payments for Merchandise—Direct Method OBJ. 3

Cost of merchandise sold reported on the income statement was $145,000. The accounts payable balance increased by $4,000, and the inventory balance increased by $9,000 over the year. Determine the amount of cash paid for merchandise.

Follow My Example 16-7

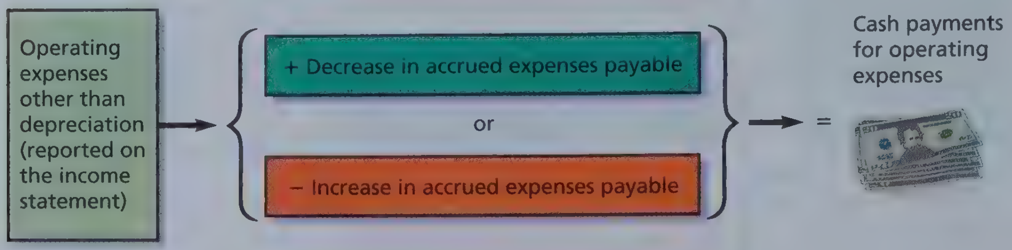
Cost of merchandise sold	$145,000
Add increase in inventories	9,000
Deduct increase in accounts payable	(4,000)
Cash paid for merchandise	$150,000

Practice Exercises: **PE 16-7A, PE 16-7B**

Cash Payments for Operating Expenses

The income statement (from Exhibit 3) for Rundell Inc. reports total operating expenses of $203,000, which includes depreciation expense of $7,000. Since depreciation expense does not require a cash outflow, it is omitted from *cash payments for operating expenses.*

To determine the *cash payments for operating expenses*, the other operating expenses (excluding depreciation) of $196,000 ($203,000 − $7,000) are adjusted for any increase or decrease in accrued expenses payable. Assuming that the accrued expenses payable are all operating expenses, this adjustment is summarized below.



The cash payments for operating expenses are $193,800, computed as follows:

Operating expenses other than depreciation	$196,000
Deduct increase in accrued expenses payable	(2,200)
Cash payments for operating expenses	$193,800

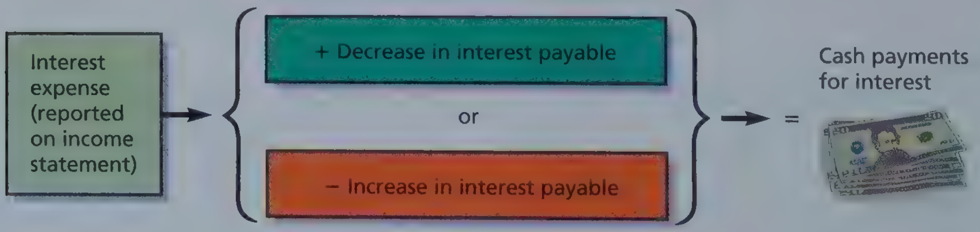
The increase in accrued expenses payable (from Exhibit 3) indicates that the cash payments for operating expenses were $2,200 less than the amount reported for operating expenses during the year. Thus, $2,200 is deducted from the operating expenses in determining the *cash payments for operating expenses.*

Gain on Sale of Land

The income statement for Rundell Inc. (from Exhibit 3) reports a gain of $12,000 on the sale of land. The sale of land is an investing activity. Thus, the proceeds from the sale, which include the gain, are reported as part of the cash flows from investing activities.

Interest Expense

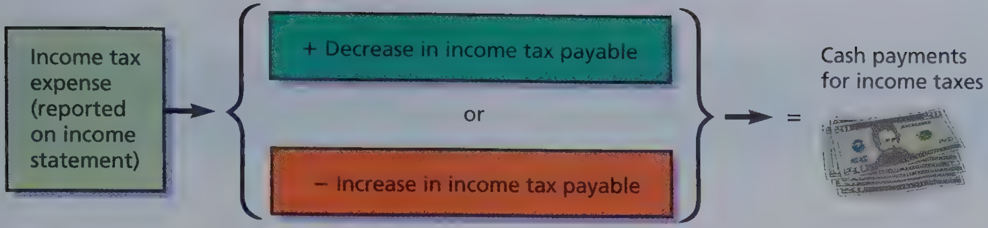
The income statement (from Exhibit 3) for Rundell Inc. reports interest expense of $8,000. To determine the *cash payments for interest*, the $8,000 is adjusted for any increases or decreases in interest payable. The adjustment is summarized as follows:



The comparative balance sheet of Rundell Inc. in Exhibit 3 indicates no interest payable. This is because the interest expense on the bonds payable is paid on June 1 and December 31. Since there is no interest payable, no adjustment of the interest expense of $8,000 is necessary.

Cash Payments for Income Taxes

The income statement (from Exhibit 3) for Rundell Inc. reports income tax expense of $83,000. To determine the *cash payments for income taxes*, the $83,000 is adjusted for any increases or decreases in income taxes payable. The adjustment is summarized below.



The cash payments for income taxes are $83,500, computed as follows:

Income tax expense	$83,000
Add decrease in income taxes payable	500
Cash payments for income taxes	$83,500

The $500 decrease in income taxes payable (from Exhibit 3) indicates that the cash payments for income taxes were $500 more than the amount reported for income tax expense during 2012. Thus, $500 is added to the income tax expense in determining the *cash payments for income taxes.*

Reporting Cash Flows from Operating Activities—Direct Method

The statement of cash flows for Rundell Inc. using the direct method for reporting cash flows from operating activities is shown in Exhibit 7. The portions of the statement that differ from those prepared under the indirect method are highlighted in color.

EXHIBIT 7

Statement of Cash Flows—Direct Method

Rundell Inc.
Statement of Cash Flows
For the Year Ended December 31, 2012

Cash flows from operating activities:			
Cash received from customers		$1,171,000	
Deduct: Cash payments for merchandise	$785,200		
Cash payments for operating expenses	193,800		
Cash payments for interest	8,000		
Cash payments for income taxes	83,500	1,070,500	
Net cash flow from operating activities			$100,500
Cash flows from investing activities:			
Cash from sale of land		$ 72,000	
Less: Cash paid to purchase land	$ 15,000		
Cash paid for purchase of building	60,000	75,000	
Net cash flow used for investing activities			(3,000)
Cash flows from financing activities:			
Cash received from sale of common stock		$ 48,000	
Less: Cash paid to retire bonds payable	$ 50,000		
Cash paid for dividends	24,000	74,000	
Net cash flow used for financing activities			(26,000)
Increase in cash			$ 71,500
Cash at the beginning of the year			26,000
Cash at the end of the year			$ 97,500
Schedule Reconciling Net Income with Cash Flows from Operating Activities:			
Cash flows from operating activities:			
Net income			$108,000

(Continued)

EXHIBIT 7

Statement of Cash Flows—Direct Method *(concluded)*

Rundell Inc.
Statement of Cash Flows
For the Year Ended December 31, 2012

Adjustments to reconcile net income to net cash flow from operating activities:	
Depreciation	7,000
Gain on sale of land	(12,000)
Changes in current operating assets and liabilities:	
Increase in accounts receivable	(9,000)
Decrease in inventory	8,000
Decrease in accounts payable	(3,200)
Increase in accrued expenses payable	2,200
Decrease in income taxes payable	(500)
Net cash flow from operating activities	$100,500

Exhibit 7 also includes the separate schedule reconciling net income and net cash flow from operating activities. This schedule is included in the statement of cash flows when the direct method is used. This schedule is similar to the Cash Flows from Operating Activities section prepared under the indirect method.

IFRS

International Connection

IFRS FOR STATEMENT OF CASH FLOWS

The statement of cash flows is required under International Financial Reporting Standards (IFRS). The statement of cash flows under IFRS is similar to that reported under U.S. GAAP in that the statement has separate sections for operating, investing, and financing activities. Like U.S. GAAP, IFRS also allow the use of either the indirect or direct method of reporting cash flows from operating activities. IFRS differ from U.S. GAAP in some minor areas, including:

- Interest paid can be reported as either an operating or a financing activity, while interest received can be reported as either an operating or an investing activity. In contrast, U.S. GAAP reports interest paid or received as an operating activity.
- Dividends paid can be reported as either an operating or a financing activity, while dividends received can be reported as either an operating or an investing activity. In contrast, U.S. GAAP reports dividends paid as a financing activity and dividends received as an operating activity.
- Cash flows to pay taxes are reported as a separate line in the operating activities, in contrast to U.S. GAAP, which does not require a separate line disclosure.

* IFRS are further discussed and illustrated on pages 716-716G and in Appendix D.

F·A·I

OBJ. 4 Describe and illustrate the use of free cash flow in evaluating a company's cash flow.

Financial Analysis and Interpretation: Free Cash Flow

A valuable tool for evaluating the cash flows of a business is free cash flow. **Free cash flow** measures the operating cash flow available to a company to use after purchasing the property, plant, and equipment (PP&E) necessary to maintain current productive capacity.[6] It is computed as follows:

Cash flow from operating activities	$XXX
Less: Investments in PP&E needed to maintain current production	XXX
Free cash flow	$XXX

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[6] Productive capacity is the number of goods the company is currently producing and selling.

Analysts often use free cash flow, rather than cash flows from operating activities, to measure the financial strength of a business. Industries such as airlines, railroads, and telecommunications companies must invest heavily in new equipment to remain competitive. Such investments can significantly reduce free cash flow. For example, Verizon Communications Inc.'s free cash flow is less than 35% of the cash flow from operating activities. In contrast, The Coca-Cola Company's free cash flow is approximately 74% of the cash flow from operating activities.

To illustrate, the cash flow from operating activities for Research in Motion, Inc., maker of BlackBerry® smartphones, was $1,452 million in a recent fiscal year. The statement of cash flows indicated that the cash invested in property, plant, and equipment was $834 million. Assuming that the amount invested in property, plant, and equipment is necessary to maintain productive capacity, free cash flow would be computed as follows (in millions):

Cash flow from operating activities	$1,452
Less: Investments in PP&E needed to maintain current production	834
Free cash flow	$ 618

Research in Motion's free cash flow was 43% of cash flow from operations and over 5% of sales. Compare this to the calculation of free cash flows for Apple, Inc. (a computer company), The Coca-Cola Company (a beverage company), and Verizon Communications, Inc. (a telecommunications company) shown below (in millions):

	Apple, Inc.	The Coca-Cola Company	Verizon Communications, Inc.
Sales	$36,537	$31,944	$97,354
Cash flow from operating activities	$10,159	$ 7,571	$26,620
Less: Investments in PP&E needed to maintain current production	1,144	1,968	17,238
Free cash flow	$ 9,015	$ 5,603	$ 9,382
Free cash flow as a percentage of cash flow from operations	89%	74%	35%
Free cash flow as a percentage of sales	25%	18%	10%

Positive free cash flow is considered favorable. A company that has free cash flow is able to fund internal growth, retire debt, pay dividends, and benefit from financial flexibility. A company with no free cash flow is unable to maintain current productive capacity. Lack of free cash flow can be an early indicator of liquidity problems. As one analyst notes, "Free cash flow gives the company firepower to reduce debt and ultimately generate consistent, actual income."[7]

Example Exercise 16-8 Free Cash Flow

4

Omnicron Inc. reported the following on the company's cash flow statement in 2012 and 2011:

	2012	2011
Net cash flow from operating activities	$140,000	$120,000
Net cash flow used for investing activities	(120,000)	(80,000)
Net cash flow used for financing activities	(20,000)	(32,000)

Seventy-five percent of the cash flow used for investing activities was used to replace existing capacity.

a. Determine Omnicron's free cash flow.

b. Has Omnicron's free cash flow improved or declined from 2011 to 2012?

(Continued)

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[7] Jill Krutick, *Fortune*, March 30, 1998, p. 106.

Follow My Example 16-8

a.

	2012	2011
Cash flow from operating activities	$140,000	$120,000
Less: Investments in fixed assets to maintain current production	90,000[1]	60,000[2]
Free cash flow	$ 50,000	$ 60,000

[1] $120,000 × 75%
[2] $80,000 × 75%

b. The change from $60,000 to $50,000 indicates an unfavorable trend.

Practice Exercises: **PE 16-8A, PE 16-8B**

APPENDIX

Spreadsheet (Work Sheet) for Statement of Cash Flows—The Indirect Method

A spreadsheet (work sheet) may used in preparing the statement of cash flows. However, whether or not a spreadsheet (work sheet) is used, the concepts presented in this chapter are not affected.

The data for Rundell Inc., presented in Exhibit 3 on pages 728–729, are used as a basis for illustrating the spreadsheet (work sheet) for the indirect method. The steps in preparing this spreadsheet (work sheet), shown in Exhibit 8, are as follows:

Step 1. List the title of each balance sheet account in the Accounts column.

Step 2. For each balance sheet account, enter its balance as of December 31, 2011, in the first column and its balance as of December 31, 2012, in the last column. Place the credit balances in parentheses.

Step 3. Add the December 31, 2011 and 2012 column totals, which should total to zero.

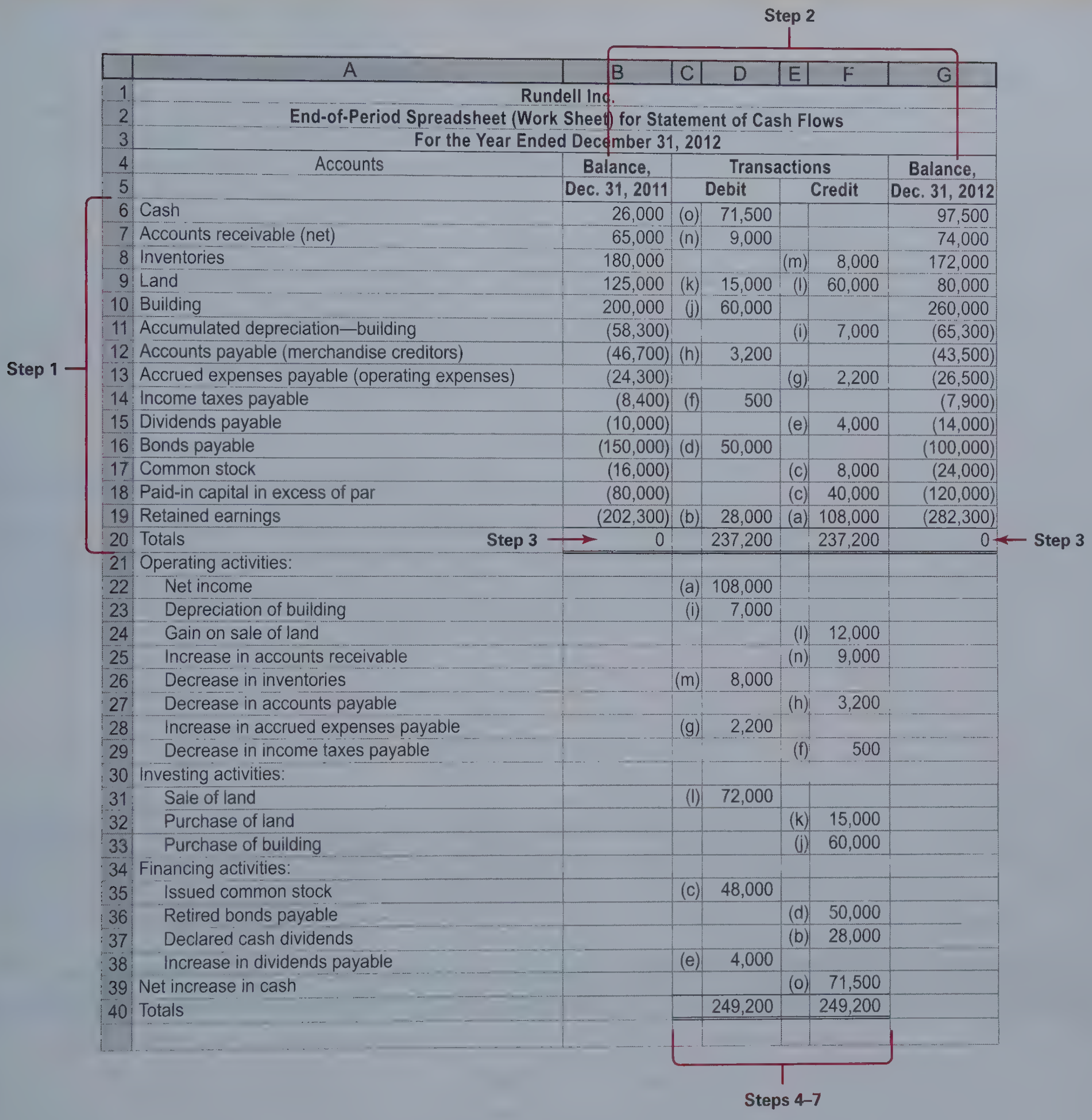
Step 4. Analyze the change during the year in each noncash account to determine its net increase (decrease) and classify the change as affecting cash flows from operating activities, investing activities, financing activities, or noncash investing and financing activities.

Step 5. Indicate the effect of the change on cash flows by making entries in the Transactions columns.

Step 6. After all noncash accounts have been analyzed, enter the net increase (decrease) in cash during the period.

Step 7. Add the Debit and Credit Transactions columns. The totals should be equal.

EXHIBIT 8 End-of-Period Spreadsheet (Work Sheet) for Statement of Cash Flows—Indirect Method



	A	B	C	D	E	F	G
1	Rundell Inc.						
2	End-of-Period Spreadsheet (Work Sheet) for Statement of Cash Flows						
3	For the Year Ended December 31, 2012						
4	Accounts	Balance,	Transactions				Balance,
5		Dec. 31, 2011		Debit		Credit	Dec. 31, 2012
6	Cash	26,000	(o)	71,500			97,500
7	Accounts receivable (net)	65,000	(n)	9,000			74,000
8	Inventories	180,000			(m)	8,000	172,000
9	Land	125,000	(k)	15,000	(l)	60,000	80,000
10	Building	200,000	(j)	60,000			260,000
11	Accumulated depreciation—building	(58,300)			(i)	7,000	(65,300)
12	Accounts payable (merchandise creditors)	(46,700)	(h)	3,200			(43,500)
13	Accrued expenses payable (operating expenses)	(24,300)			(g)	2,200	(26,500)
14	Income taxes payable	(8,400)	(f)	500			(7,900)
15	Dividends payable	(10,000)			(e)	4,000	(14,000)
16	Bonds payable	(150,000)	(d)	50,000			(100,000)
17	Common stock	(16,000)			(c)	8,000	(24,000)
18	Paid-in capital in excess of par	(80,000)			(c)	40,000	(120,000)
19	Retained earnings	(202,300)	(b)	28,000	(a)	108,000	(282,300)
20	Totals	0		237,200		237,200	0
21	Operating activities:						
22	Net income		(a)	108,000			
23	Depreciation of building		(i)	7,000			
24	Gain on sale of land				(l)	12,000	
25	Increase in accounts receivable				(n)	9,000	
26	Decrease in inventories		(m)	8,000			
27	Decrease in accounts payable				(h)	3,200	
28	Increase in accrued expenses payable		(g)	2,200			
29	Decrease in income taxes payable				(f)	500	
30	Investing activities:						
31	Sale of land		(l)	72,000			
32	Purchase of land				(k)	15,000	
33	Purchase of building				(j)	60,000	
34	Financing activities:						
35	Issued common stock		(c)	48,000			
36	Retired bonds payable				(d)	50,000	
37	Declared cash dividends				(b)	28,000	
38	Increase in dividends payable		(e)	4,000			
39	Net increase in cash				(o)	71,500	
40	Totals			249,200		249,200	

Analyzing Accounts

In analyzing the noncash accounts (Step 4), try to determine the type of cash flow activity (operating, investing, or financing) that led to the change in account. As each noncash account is analyzed, an entry (Step 5) is made on the spreadsheet (work sheet) for the type of cash flow activity that caused the change. After all noncash accounts have been analyzed, an entry (Step 6) is made for the increase (decrease) in cash during the period.

The entries made on the spreadsheet are not posted to the ledger. They are only used in preparing and summarizing the data on the spreadsheet.

The order in which the accounts are analyzed is not important. However, it is more efficient to begin with Retained Earnings and proceed upward in the account listing.

Retained Earnings

The spreadsheet (work sheet) shows a Retained Earnings balance of $202,300 at December 31, 2011, and $282,300 at December 31, 2012. Thus, Retained Earnings increased $80,000 during the year. This increase is from the following:

1. Net income of $108,000
2. Declaring cash dividends of $28,000

To identify the cash flows from these activities, two entries are made on the spreadsheet.

The $108,000 is reported on the statement of cash flows as part of "cash flows from operating activities." Thus, an entry is made in the Transactions columns on the spreadsheet as follows:

(a)	Operating Activities—Net Income	108,000	
	Retained Earnings		108,000

The preceding entry accounts for the net income portion of the change to Retained Earnings. It also identifies the cash flow in the bottom portion of the spreadsheet as related to operating activities.

The $28,000 of dividends is reported as a financing activity on the statement of cash flows. Thus, an entry is made in the Transactions columns on the spreadsheet as follows:

(b)	Retained Earnings	28,000	
	Financing Activities—Declared Cash Dividends		28,000

The preceding entry accounts for the dividends portion of the change to Retained Earnings. It also identifies the cash flow in the bottom portion of the spreadsheet as related to financing activities. The $28,000 of declared dividends will be adjusted later for the actual amount of cash dividends paid during the year.

Other Accounts

The entries for the other noncash accounts are made in the spreadsheet in a manner similar to entries (a) and (b). A summary of these entries is as follows:

(c)	Financing Activities—Issued Common Stock	48,000	
	Common Stock		8,000
	Paid-In Capital in Excess of Par—Common Stock		40,000
(d)	Bonds Payable	50,000	
	Financing Activities—Retired Bonds Payable		50,000
(e)	Financing Activities—Increase in Dividends Payable	4,000	
	Dividends Payable		4,000
(f)	Income Taxes Payable	500	
	Operating Activities—Decrease in Income Taxes Payable		500
(g)	Operating Activities—Increase in Accrued Expenses Payable	2,200	
	Accrued Expenses Payable		2,200
(h)	Accounts Payable	3,200	
	Operating Activities—Decrease in Accounts Payable		3,200
(i)	Operating Activities—Depreciation of Building	7,000	
	Accumulated Depreciation—Building		7,000

(j)	Building	60,000	
	Investing Activities—Purchase of Building		60,000
(k)	Land	15,000	
	Investing Activities—Purchase of Land		15,000
(l)	Investing Activities—Sale of Land	72,000	
	Operating Activities—Gain on Sale of Land		12,000
	Land		60,000
(m)	Operating Activities—Decrease in Inventories	8,000	
	Inventories		8,000
(n)	Accounts Receivable	9,000	
	Operating Activities—Increase in Accounts Receivable		9,000
(o)	Cash	71,500	
	Net Increase in Cash		71,500

After all the balance sheet accounts are analyzed and the entries made on the spreadsheet (work sheet), all the operating, investing, and financing activities are identified in the bottom portion of the spreadsheet. The accuracy of the entries is verified by totaling the Debit and Credit Transactions columns. The totals of the columns should be equal.

Preparing the Statement of Cash Flows

The statement of cash flows prepared from the spreadsheet is identical to the statement in Exhibit 6 on page 739. The data for the three sections of the statement are obtained from the bottom portion of the spreadsheet.

At a Glance 16

OBJ. 1 Describe the cash flow activities reported in the statement of cash flows.

Key Points The statement of cash flows reports cash receipts and cash payments by three types of activities: operating activities, investing activities, and financing activities. Cash flows from operating activities are the cash inflow or outflow from a company's day-to-day operations. Cash flows from investing activities show the cash inflows and outflows related to changes in a company's long-term assets. Cash flows from financing activities show the cash inflows and outflows related to changes in a company's long-term liabilities and stockholders' equity. Investing and financing for a business may be affected by transactions that do not involve cash. The effect of such transactions should be reported in a separate schedule accompanying the statement of cash flows.

Learning Outcomes	Example Exercises	Practice Exercises
• Classify transactions that either provide or use cash into either operating, investing, or financing activities.	EE16-1	PE16-1A, 16-1B

OBJ. 2 Prepare a statement of cash flows, using the indirect method.

Key Points The indirect method reports cash flow from operating activities by adjusting net income for revenues and expenses that do not involve the receipt or payment of cash. Noncash expenses such as depreciation are added back to net income. Gains and losses on the disposal of assets are added to or deducted from net income. Changes in current operating assets and liabilities are added to or subtracted from net income depending on their effect on cash. Cash flow from investing activities and cash flow from financing activities are reported below cash flow from operating activities in the statement of cash flows.

Learning Outcomes	Example Exercises	Practice Exercises
• Determine cash flow from operating activities under the indirect method by adjusting net income for noncash expenses and gains and losses from asset disposals.	EE16-2	PE16-2A, 16-2B
• Determine cash flow from operating activities under the indirect method by adjusting net income for changes in current operating assets and liabilities.	EE16-3	PE16-3A, 16-3B
• Prepare the Cash Flows from Operating Activities section of the statement of cash flows using the indirect method.	EE16-4	PE16-4A, 16-4B
• Prepare the Cash Flows from Investing Activities and Cash Flows from Financing Activities sections of the statement of cash flows.	EE16-5	PE16-5A, 16-5B

OBJ. 3 Prepare a statement of cash flows, using the direct method.

Key Points The amount of cash flows from operating activities is the same under both the direct and indirect methods, but the manner in which cash flow from operating activities is reported is different. The direct method reports cash flows from operating activities by major classes of operating cash receipts and cash payments. The difference between the major classes of total operating cash receipts and total operating cash payments is the net cash flow from operating activities. The Cash Flows from Investing and Financing Activities sections of the statement are the same under both the direct and indirect methods.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare the cash flows from operating activities and the remainder of the statement of cash flows under the direct method.	EE16-6 EE16-7	PE16-6A, 16-6B PE16-7A, 16-7B

OBJ. 4 Describe and illustrate the use of free cash flow in evaluating a company's cash flow.

Key Points Free cash flow measures the operating cash flow available for company use after purchasing the fixed assets that are necessary to maintain current productive capacity. It is calculated by subtracting these fixed asset purchases from cash flow from operating activities. A company with strong free cash flow is able to fund internal growth, retire debt, pay dividends, and enjoy financial flexibility. A company with weak free cash flow has much less financial flexibility for such activities.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe free cash flow.		
• Calculate and evaluate free cash flow.	EE16-8	PE16-8A, 16-8B

Key Terms

- cash flow per share (727)
- cash flows from financing activities (725)
- cash flows from investing activities (724)
- cash flows from operating activities (724)
- direct method (725)
- free cash flow (744)
- indirect method (726)
- statement of cash flows (724)

Illustrative Problem

The comparative balance sheet of Dowling Company for December 31, 2012 and 2011, is as follows:

Dowling Company
Comparative Balance Sheet
December 31, 2012 and 2011

	2012	2011
Assets		
Cash	$ 140,350	$ 95,900
Accounts receivable (net)	95,300	102,300
Inventories	165,200	157,900
Prepaid expenses	6,240	5,860
Investments (long-term)	35,700	84,700
Land	75,000	90,000
Buildings	375,000	260,000
Accumulated depreciation—buildings	(71,300)	(58,300)
Machinery and equipment	428,300	428,300
Accumulated depreciation—machinery and equipment	(148,500)	(138,000)
Patents	58,000	65,000
Total assets	$1,159,290	$1,093,660
Liabilities and Stockholders' Equity		
Accounts payable (merchandise creditors)	$ 43,500	$ 46,700
Accrued expenses payable (operating expenses)	14,000	12,500
Income taxes payable	7,900	8,400
Dividends payable	14,000	10,000
Mortgage note payable, due 2023	40,000	0
Bonds payable	150,000	250,000
Common stock, $30 par	450,000	375,000
Excess of issue price over par—common stock	66,250	41,250
Retained earnings	373,640	349,810
Total liabilities and stockholders' equity	$1,159,290	$1,093,660

The income statement for Dowling Company is shown here.

Dowling Company
Income Statement
For the Year Ended December 31, 2012

Sales		$1,100,000
Cost of merchandise sold		710,000
Gross profit		$ 390,000
Operating expenses:		
Depreciation expense	$ 23,500	
Patent amortization	7,000	
Other operating expenses	196,000	
Total operating expenses		226,500
Income from operations		$ 163,500
Other income:		
Gain on sale of investments	$ 11,000	
Other expense:		
Interest expense	26,000	(15,000)
Income before income tax		$ 148,500
Income tax expense		50,000
Net income		$ 98,500

An examination of the accounting records revealed the following additional information applicable to 2012:

a. Land costing $15,000 was sold for $15,000.

b. A mortgage note was issued for $40,000.

c. A building costing $115,000 was constructed.

d. 2,500 shares of common stock were issued at $40 in exchange for the bonds payable.

e. Cash dividends declared were $74,670.

Instructions

1. Prepare a statement of cash flows, using the indirect method of reporting cash flows from operating activities.
2. Prepare a statement of cash flows, using the direct method of reporting cash flows from operating activities.

Solution

1.

Dowling Company
Statement of Cash Flows—Indirect Method
For the Year Ended December 31, 2012

Cash flows from operating activities:			
Net income		$ 98,500	
Adjustments to reconcile net income to net cash flow from operating activities:			
Depreciation		23,500	
Amortization of patents		7,000	
Gain on sale of investments		(11,000)	
Changes in current operating assets and liabilities:			
Decrease in accounts receivable		7,000	
Increase in inventories		(7,300)	
Increase in prepaid expenses		(380)	
Decrease in accounts payable		(3,200)	
Increase in accrued expenses payable		1,500	
Decrease in income taxes payable		(500)	
Net cash flow from operating activities			$115,120
Cash flows from investing activities:			
Cash received from sale of:			
Investments	$60,000[1]		
Land	15,000	$ 75,000	
Less: Cash paid for construction of building		115,000	
Net cash flow used for investing activities			(40,000)
Cash flows from financing activities:			
Cash received from issuing mortgage note payable		$ 40,000	
Less: Cash paid for dividends		70,670[2]	
Net cash flow used for financing activities			(30,670)
Increase in cash			$ 44,450
Cash at the beginning of the year			95,900
Cash at the end of the year			$140,350
Schedule of Noncash Investing and Financing Activities:			
Issued common stock to retire bonds payable			$100,000

[1] $60,000 = $11,000 gain + $49,000 (decrease in investments)

[2] $70,670 = $74,670 – $4,000 (increase in dividends)

2.

Dowling Company
Statement of Cash Flows—Direct Method
For the Year Ended December 31, 2012

Cash flows from operating activities:			
Cash received from customers[1]		$1,107,000	
Deduct: Cash paid for merchandise[2]	$720,500		
Cash paid for operating expenses[3]	194,880		
Cash paid for interest expense	26,000		
Cash paid for income tax[4]	50,500	991,880	
Net cash flow from operating activities			$115,120
Cash flows from investing activities:			
Cash received from sale of:			
Investments	$ 60,000[5]		
Land	15,000	$ 75,000	
Less: Cash paid for construction of building		115,000	
Net cash flow used for investing activities			(40,000)
Cash flows from financing activities:			
Cash received from issuing mortgage note payable		$ 40,000	
Less: Cash paid for dividends[6]		70,670	
Net cash flow used for financing activities			(30,670)
Increase in cash			$ 44,450
Cash at the beginning of the year			95,900
Cash at the end of the year			$140,350
Schedule of Noncash Investing and Financing Activities:			
Issued common stock to retire bonds payable			$100,000
Schedule Reconciling Net Income with Cash Flows from Operating Activities[7]			

Computations:

[1] $1,100,000 + $7,000 = $1,107,000
[2] $710,000 + $3,200 + $7,300 = $720,500
[3] $196,000 + $380 − $1,500 = $194,880
[4] $50,000 + $500 = $50,500
[5] $60,000 = $11,000 gain + $49,000 (decrease in investments)
[6] $74,670 + $10,000 − $14,000 = $70,670
[7] The content of this schedule is the same as the Operating Activities section of part (1) of this solution and is not reproduced here for the sake of brevity.

Discussion Questions

1. What is the principal disadvantage of the direct method of reporting cash flows from operating activities?
2. What are the major advantages of the indirect method of reporting cash flows from operating activities?
3. A corporation issued $1,000,000 of common stock in exchange for $1,000,000 of fixed assets. Where would this transaction be reported on the statement of cash flows?
4. A retail business, using the accrual method of accounting, owed merchandise creditors (accounts payable) $240,000 at the beginning of the year and $265,000 at the end of the year. How would the $25,000 increase be used to adjust net income in determining the amount of cash flows from operating activities by the indirect method? Explain.
5. If salaries payable was $75,000 at the beginning of the year and $40,000 at the end of the year, should $35,000 be added to or deducted from income to determine the amount of cash flows from operating activities by the indirect method? Explain.
6. A long-term investment in bonds with a cost of $800,000 was sold for $910,000 cash. (a) What was

the gain or loss on the sale? (b) What was the effect of the transaction on cash flows? (c) How should the transaction be reported in the statement of cash flows if cash flows from operating activities are reported by the indirect method?

7. A corporation issued $10,000,000 of 20-year bonds for cash at 102. How would the transaction be reported on the statement of cash flows?

8. Fully depreciated equipment costing $25,000 was discarded. What was the effect of the transaction on cash flows if (a) $10,000 cash is received, (b) no cash is received?

9. For the current year, Bearings Company decided to switch from the indirect method to the direct method for reporting cash flows from operating activities on the statement of cash flows. Will the change cause the amount of net cash flow from operating activities to be (a) larger, (b) smaller, or (c) the same as if the indirect method had been used? Explain.

10. Name five common major classes of operating cash receipts or operating cash payments presented on the statement of cash flows when the cash flows from operating activities are reported by the direct method.

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 1 **EE 16-1** *p. 727*

PE 16-1A Classifying cash flows

Identify whether each of the following would be reported as an operating, investing, or financing activity in the statement of cash flows.

a. Retirement of bonds payable
b. Payment of accounts payable
c. Issuance of common stock
d. Payment for administrative expenses
e. Cash received from customers
f. Purchase of land

OBJ. 1 **EE 16-1** *p. 727*

PE 16-1B Classifying cash flows

Identify whether each of the following would be reported as an operating, investing, or financing activity in the statement of cash flows.

a. Issuance of bonds payable
b. Cash sales
c. Collection of accounts receivable
d. Payment for selling expenses
e. Disposal of equipment
f. Purchase of investments

OBJ. 2 **EE 16-2** *p. 731*

PE 16-2A Adjustments to net income—indirect method

Martin Corporation's accumulated depreciation—furniture increased by $10,500, while $3,850 of patents were amortized between balance sheet dates. There were no purchases or sales of depreciable or intangible assets during the year. In addition, the income statement showed a loss of $5,600 from the sale of land. Reconcile a net income of $150,500 to net cash flow from operating activities.

OBJ. 2 **EE 16-2** *p. 731*

PE 16-2B Adjustments to net income—indirect method

Chu Corporation's accumulated depreciation—equipment increased by $5,600, while $2,080 of patents were amortized between balance sheet dates. There were no purchases or sales of depreciable or intangible assets during the year. In addition, the income statement showed a gain of $12,000 from the sale of investments. Reconcile a net income of $112,000 to net cash flow from operating activities.

OBJ. 2 **EE 16-3** *p. 734*

PE 16-3A Changes in current operating assets and liabilities—indirect method

Phelps Corporation's comparative balance sheet for current assets and liabilities was as follows:

	Dec. 31, 2013	Dec. 31, 2012
Accounts receivable	$22,500	$27,000
Inventory	15,000	12,900
Accounts payable	13,500	11,850
Dividends payable	41,250	44,250

Adjust net income of $138,000 for changes in operating assets and liabilities to arrive at net cash flow from operating activities.

Learning Objectives *Example Exercises*

OBJ. 2 **EE 16-3** *p. 734*

PE 16-3B Changes in current operating assets and liabilities—indirect method

Dali Corporation's comparative balance sheet for current assets and liabilities was as follows:

	Dec. 31, 2013	Dec. 31, 2012
Accounts receivable	$25,500	$20,400
Inventory	49,300	42,075
Accounts payable	39,100	29,325
Dividends payable	11,900	15,300

Adjust net income of $240,000 for changes in operating assets and liabilities to arrive at net cash flow from operating activities.

OBJ. 2 **EE 16-4** *p. 735*

PE 16-4A Cash flows from operating activities—indirect method

Salem Inc. reported the following data:

Net income	$168,750
Depreciation expense	18,750
Gain on disposal of equipment	15,375
Decrease in accounts receivable	10,500
Decrease in accounts payable	2,700

Prepare the Cash Flows from Operating Activities section of the statement of cash flows using the indirect method.

OBJ. 2 **EE 16-4** *p. 735*

PE 16-4B Cash flows from operating activities—indirect method

Malibu Inc. reported the following data:

Net income	$393,750
Depreciation expense	67,500
Loss on disposal of equipment	27,450
Increase in accounts receivable	24,300
Increase in accounts payable	12,600

Prepare the Cash Flows from Operating Activities section of the statement of cash flows using the indirect method.

OBJ. 2 **EE 16-5** *p. 738*

PE 16-5A Land transactions on the statement of cash flows

Seeing Double Corporation purchased land for $510,000. Later in the year, the company sold land with a book value of $217,500 for $165,000. How are the effects of these transactions reported on the statement of cash flows?

OBJ. 2 **EE 16-5** *p. 738*

PE 16-5B Land transactions on the statement of cash flows

Pilot Corporation purchased land for $480,000. Later in the year, the company sold land with a book value of $288,000 for $328,000. How are the effects of these transactions reported on the statement of cash flows?

OBJ. 3 **EE 16-6** *p. 740*

PE 16-6A Cash received from customers—direct method

Sales reported on the income statement were $450,000. The accounts receivable balance increased $47,000 over the year. Determine the amount of cash received from customers.

OBJ. 3 **EE 16-6** *p. 740*

PE 16-6B Cash received from customers—direct method

Sales reported on the income statement were $85,600. The accounts receivable balance decreased $7,400 over the year. Determine the amount of cash received from customers.

Learning Objectives *Example Exercises*

OBJ. 3 **EE 16-7** *p. 741*

PE 16-7A Cash payments for merchandise—direct method

Cost of merchandise sold reported on the income statement was $360,000. The accounts payable balance decreased $17,800, and the inventory balance decreased by $28,000 over the year. Determine the amount of cash paid for merchandise.

OBJ. 3 **EE 16-7** *p. 741*

PE 16-7B Cash payments for merchandise—direct method

Cost of merchandise sold reported on the income statement was $210,000. The accounts payable balance increased $8,600, and the inventory balance increased by $16,900 over the year. Determine the amount of cash paid for merchandise.

OBJ. 4 **EE 16-8** *p. 745*

FAI

PE 16-8A Free cash flow

Totson Inc. reported the following on the company's statement of cash flows in 2012 and 2011:

	2012	2011
Net cash flow from operating activities	$ 210,000	$ 200,000
Net cash flow used for investing activities	(160,000)	(180,000)
Net cash flow used for financing activities	(45,000)	(30,000)

Eighty percent of the cash flow used for investing activities was used to replace existing capacity.

a. Determine Totson's free cash flow.

b. Has Totson's free cash flow improved or declined from 2011 to 2012?

OBJ. 4 **EE 16-8** *p. 745*

FAI

PE 16-8B Free cash flow

Burkenfelt Inc. reported the following on the company's statement of cash flows in 2012 and 2011:

	2012	2011
Net cash flow from operating activities	$ 340,000	$ 325,000
Net cash flow used for investing activities	(305,000)	(270,000)
Net cash flow used for financing activities	(30,000)	(42,000)

Seventy percent of the cash flow used for investing activities was used to replace existing capacity.

a. Determine Burkenfelt's free cash flow.

b. Has Burkenfelt's free cash flow improved or declined from 2011 to 2012?

Exercises

OBJ. 1

EX 16-1 Cash flows from operating activities—net loss

On its income statement for a recent year, Continental Airlines, Inc. reported a net *loss* of $68 million from operations. On its statement of cash flows, it reported $457 million of cash flows from operating activities.

Explain this apparent contradiction between the loss and the positive cash flows.

OBJ. 1

✓ c. Cash payment, $560,000

EX 16-2 Effect of transactions on cash flows

State the effect (cash receipt or payment and amount) of each of the following transactions, considered individually, on cash flows:

a. Sold equipment with a book value of $65,000 for $83,000.

b. Sold a new issue of $400,000 of bonds at 98.

c. Retired $550,000 of bonds, on which there was $5,000 of unamortized discount, for $560,000.

d. Purchased 2,000 shares of $25 par common stock as treasury stock at $50 per share.

e. Sold 5,000 shares of $20 par common stock for $100 per share.
f. Paid dividends of $1.00 per share. There were 50,000 shares issued and 6,000 shares of treasury stock.
g. Purchased land for $320,000 cash.
h. Purchased a building by paying $40,000 cash and issuing a $60,000 mortgage note payable.

OBJ. 1

EX 16-3 Classifying cash flows

Identify the type of cash flow activity for each of the following events (operating, investing, or financing):

a. Sold equipment.
b. Issued bonds.
c. Issued common stock.
d. Paid cash dividends.
e. Purchased treasury stock.
f. Redeemed bonds.
g. Purchased patents.
h. Purchased buildings.
i. Sold long-term investments.
j. Issued preferred stock.
k. Net income.

OBJ. 2

EX 16-4 Cash flows from operating activities—indirect method

Indicate whether each of the following would be added to or deducted from net income in determining net cash flow from operating activities by the indirect method:

a. Decrease in accounts payable
b. Increase in notes receivable due in 90 days from customers
c. Decrease in accounts receivable
d. Loss on disposal of fixed assets
e. Increase in notes payable due in 90 days to vendors
f. Amortization of patent
g. Depreciation of fixed assets
h. Gain on retirement of long-term debt
i. Decrease in salaries payable
j. Increase in merchandise inventory
k. Decrease in prepaid expenses

OBJ. 2

✔ Net cash flow from operating activities, $752,880

EX 16-5 Cash flows from operating activities—indirect method

The net income reported on the income statement for the current year was $720,000. Depreciation recorded on store equipment for the year amounted to $32,700. Balances of the current asset and current liability accounts at the beginning and end of the year are as follows:

	End of Year	Beginning of Year
Cash	$78,450	$72,300
Accounts receivable (net)	56,250	53,400
Merchandise inventory	76,800	81,330
Prepaid expenses	9,000	6,900
Accounts payable (merchandise creditors)	73,500	68,400
Wages payable	40,200	44,700

a. Prepare the Cash Flows from Operating Activities section of the statement of cash flows, using the indirect method.
b. Briefly explain why cash flows from operating activities is different than net income.

OBJ. 1, 2

✔ Net cash flow from operating activities, $466,110

EX 16-6 Cash flows from operating activities—indirect method

The net income reported on the income statement for the current year was $378,000. Depreciation recorded on equipment and a building amounted to $112,500 for the year. Balances of the current asset and current liability accounts at the beginning and end of the year are as follows:

	End of Year	Beginning of Year
Cash	$100,800	$107,100
Accounts receivable (net)	127,800	132,120
Inventories	252,000	227,700
Prepaid expenses	14,040	15,120
Accounts payable (merchandise creditors)	112,680	119,520
Salaries payable	16,200	14,850

a. Prepare the Cash Flows from Operating Activities section of the statement of cash flows, using the indirect method.

b. If the direct method had been used, would the net cash flow from operating activities have been the same? Explain.

OBJ. 1, 2

✔ Net cash flow from operating activities, $197,220

EX 16-7 Cash flows from operating activities—indirect method

The income statement disclosed the following items for 2013:

Depreciation expense	$ 21,600
Gain on disposal of equipment	12,600
Net income	190,500

Balances of the current assets and current liability accounts changed between December 31, 2012, and December 31, 2013, as follows:

Accounts receivable	$3,360
Inventory	1,920*
Prepaid insurance	720*
Accounts payable	2,280*
Income taxes payable	720
Dividends payable	510

*Decrease

a. Prepare the Cash Flows from Operating Activities section of the statement of cash flows, using the indirect method.

b. Briefly explain why cash flows from operating activities is different than net income.

OBJ. 2

EX 16-8 Determining cash payments to stockholders

The board of directors declared cash dividends totaling $260,000 during the current year. The comparative balance sheet indicates dividends payable of $74,500 at the beginning of the year and $65,000 at the end of the year. What was the amount of cash payments to stockholders during the year?

OBJ. 2

EX 16-9 Reporting changes in equipment on statement of cash flows

An analysis of the general ledger accounts indicates that office equipment, which cost $89,000 and on which accumulated depreciation totaled $36,000 on the date of sale, was sold for $43,500 during the year. Using this information, indicate the items to be reported on the statement of cash flows.

OBJ. 2

EX 16-10 Reporting changes in equipment on statement of cash flows

An analysis of the general ledger accounts indicates that delivery equipment, which cost $246,000 and on which accumulated depreciation totaled $124,500 on the date of sale, was sold for $110,500 during the year. Using this information, indicate the items to be reported on the statement of cash flows.

OBJ. 2

EX 16-11 Reporting land transactions on statement of cash flows

On the basis of the details of the following fixed asset account, indicate the items to be reported on the statement of cash flows:

ACCOUNT *Land* **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012						
Jan.	1	Balance			620,000	
Apr.	6	Purchased for cash	74,500		694,500	
Nov.	23	Sold for $68,250		45,600	648,900	

OBJ. 2

EX 16-12 Reporting stockholders' equity items on statement of cash flows

On the basis of the following stockholders' equity accounts, indicate the items, exclusive of net income, to be reported on the statement of cash flows. There were no unpaid dividends at either the beginning or the end of the year.

ACCOUNT *Common Stock, $30 par* **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012						
Jan.	1	Balance, 90,000 shares				2,700,000
Mar.	7	22,500 shares issued for cash		675,000		3,375,000
June	30	3,300-share stock dividend		99,000		3,474,000

ACCOUNT *Paid-In Capital in Excess of Par—Common Stock* **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012						
Jan.	1	Balance				300,000
Mar.	7	22,500 shares issued for cash		1,080,000		1,380,000
June	30	Stock dividend		178,200		1,558,200

ACCOUNT *Retained Earnings* **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012						
Jan.	1	Balance				1,500,000
June	30	Stock dividend	277,200			1,222,800
Dec.	30	Cash dividend	260,550			962,250
	31	Net income		1,080,000		2,042,250

OBJ. 2

EX 16-13 Reporting land acquisition for cash and mortgage note on statement of cash flows

On the basis of the details of the following fixed asset account, indicate the items to be reported on the statement of cash flows:

ACCOUNT *Land* **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012						
Jan.	1	Balance			195,000	
Feb.	10	Purchased for cash	307,500		502,500	
Nov.	20	Purchased with long-term mortgage note	405,000		907,500	

OBJ. 2

EX 16-14 Reporting issuance and retirement of long-term debt

On the basis of the details of the following bonds payable and related discount accounts, indicate the items to be reported in the Financing section of the statement of cash flows, assuming no gain or loss on retiring the bonds:

ACCOUNT *Bonds Payable* ACCOUNT NO.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012						
Jan.	1	Balance				800,000
	2	Retire bonds	160,000			640,000
June	30	Issue bonds		480,000		1,120,000

ACCOUNT *Discount on Bond Payable* ACCOUNT NO.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2012						
Jan.	1	Balance			36,000	
	2	Retire bonds		12,800	23,200	
June	30	Issue bonds	32,000		55,200	
Dec.	31	Amortize discount		2,800	52,400	

OBJ. 2

✓ Net income, $233,025

EX 16-15 Determining net income from net cash flow from operating activities

Shinlund, Inc., reported a net cash flow from operating activities of $243,750 on its statement of cash flows for the year ended December 31, 2012. The following information was reported in the Cash Flows from Operating Activities section of the statement of cash flows, using the indirect method:

Decrease in income taxes payable	$ 5,250
Decrease in inventories	13,050
Depreciation	20,100
Gain on sale of investments	9,000
Increase in accounts payable	3,600
Increase in prepaid expenses	2,025
Increase in accounts receivable	9,750

a. Determine the net income reported by Shinlund, Inc., for the year ended December 31, 2012.

b. Briefly explain why Shinlund's net income is different than cash flows from operating activities.

OBJ. 2

✓ Net cash flow from operating activities, $(7,263)

EX 16-16 Cash flows from operating activities—indirect method

Selected data derived from the income statement and balance sheet of Jones Soda Co. for a recent year are as follows:

Income statement data (in thousands):	
Net earnings	$(10,547)
Losses on inventory write-down and fixed assets	2,248
Depreciation expense	811
Stock based compensation expense (noncash)	727
Balance sheet data (in thousands):	
Decrease in accounts receivable	364
Decrease in inventory	210
Decrease in prepaid expenses	206
Decrease in accounts payable	(165)
Decrease in accrued liabilities	(1,117)

a. Prepare the Cash Flows from Operating Activities section of the statement of cash flows using the indirect method for Jones Soda Co. for the year.

b. Interpret your results in part (a).

OBJ. 2

✔ Net cash flow from operating activities, $90

EX 16-17 Statement of cash flows—indirect method

The comparative balance sheet of Hobson Medical Equipment Inc. for December 31, 2013 and 2012, is as follows:

	Dec. 31, 2013	Dec. 31, 2012
Assets		
Cash	$294	$ 96
Accounts receivable (net)	168	120
Inventories	105	66
Land	240	270
Equipment	135	105
Accumulated depreciation—equipment	(36)	(18)
Total	$906	$639
Liabilities and Stockholders' Equity		
Accounts payable (merchandise creditors)	$105	$ 96
Dividends payable	18	—
Common stock, $10 par	60	30
Paid-in capital in excess of par—common stock	150	75
Retained earnings	573	438
Total	$906	$639

The following additional information is taken from the records:

a. Land was sold for $75.

b. Equipment was acquired for cash.

c. There were no disposals of equipment during the year.

d. The common stock was issued for cash.

e. There was a $195 credit to Retained Earnings for net income.

f. There was a $60 debit to Retained Earnings for cash dividends declared.

Respond to the following:

a. Prepare a statement of cash flows, using the indirect method of presenting cash flows from operating activities.

b. Was Hobson Medical Equipment's cash flow from operations more or less than net income? What is the source of this difference?

OBJ. 2

EX 16-18 Statement of cash flows—indirect method

List the errors you find in the following statement of cash flows. The cash balance at the beginning of the year was $180,576. All other amounts are correct, except the cash balance at the end of the year.

Hough Inc.
Statement of Cash Flows
For the Year Ended December 31, 2012

Cash flows from operating activities:		
Net income	$266,544	
Adjustments to reconcile net income to net cash flow from operating activities:		
Depreciation	75,600	
Gain on sale of investements	12,960	
Changes in current operating assets and liabilities:		
Increase in accounts receivable	20,520	
Increase in inventories	(26,568)	
Increase in accounts payable	(7,992)	
Decrease in accrued expenses payable	(1,944)	
Net cash flow from operating activities		$339,120

(Continued)

Cash flows from investing activities:			
Cash received from sale of investments		$183,600	
Less: Cash paid for purchase of land	$194,400		
Cash paid for purchase of equipment	324,360	518,760	
Net cash flow used for investing activities			(335,160)
Cash flows from financing activities:			
Cash received from sale of common stock		$231,120	
Cash paid for dividends		97,200	
Net cash flow provided by financing activities			133,920
Increase in cash			$ 86,904
Cash at the end of the year			180,576
Cash at the beginning of the year			$267,480

OBJ. 3

✔ a. $546,375

EX 16-19 Cash flows from operating activities—direct method

The cash flows from operating activities are reported by the direct method on the statement of cash flows. Determine the following:

a. If sales for the current year were $513,750 and accounts receivable decreased by $32,625 during the year, what was the amount of cash received from customers?

b. If income tax expense for the current year was $34,500 and income tax payable decreased by $3,900 during the year, what was the amount of cash payments for income tax?

c. Briefly explain why the cash received from customers in (a) is different than sales.

OBJ. 3

EX 16-20 Cash paid for merchandise purchases

The cost of merchandise sold for Kohl's Corporation for a recent year was $10,680 million. The balance sheet showed the following current account balances (in millions):

	Balance, End of Year	Balance, Beginning of Year
Merchandise inventories	$2,923	$2,799
Accounts payable	2,374	1,827

Determine the amount of cash payments for merchandise.

OBJ. 3

✔ a. $624,442

EX 16-21 Determining selected amounts for cash flows from operating activities—direct method

Selected data taken from the accounting records of Bentson Inc. for the current year ended December 31 are as follows:

	Balance, December 31	Balance, January 1
Accrued expenses payable (operating expenses)	$ 7,826	$ 8,554
Accounts payable (merchandise creditors)	58,422	64,428
Inventories	108,290	117,754
Prepaid expenses	4,550	5,460

During the current year, the cost of merchandise sold was $627,900, and the operating expenses other than depreciation were $109,200. The direct method is used for presenting the cash flows from operating activities on the statement of cash flows.

Determine the amount reported on the statement of cash flows for (a) cash payments for merchandise and (b) cash payments for operating expenses.

OBJ. 3

✔ Net cash flow from operating activities, $52,320

EX 16-22 Cash flows from operating activities—direct method

The income statement of Goliath Industries Inc. for the current year ended June 30 is as follows:

Sales		$273,600
Cost of merchandise sold		155,400
Gross profit		$118,200
Operating expenses:		
Depreciation expense	$21,000	
Other operating expenses	55,440	
Total operating expenses		76,440
Income before income tax		$ 41,760
Income tax expense		11,580
Net income		$ 30,180

Changes in the balances of selected accounts from the beginning to the end of the current year are as follows:

	Increase Decrease*
Accounts receivable (net)	$6,300*
Inventories	2,100
Prepaid expenses	2,040*
Accounts payable (merchandise creditors)	4,320*
Accrued expenses payable (operating expenses)	660
Income tax payable	1,440*

a. Prepare the Cash Flows from Operating Activities section of the statement of cash flows, using the direct method.

b. What does the direct method show about a company's cash flow from operating activities that is not shown using the indirect method?

OBJ. 3

✔ Net cash flow from operating activities, $183,430

EX 16-23 Cash flows from operating activities—direct method

The income statement for Kipitz Company for the current year ended June 30 and balances of selected accounts at the beginning and the end of the year are as follows:

Sales		$657,800
Cost of merchandise sold		227,500
Gross profit		$430,300
Operating expenses:		
Depreciation expense	$ 56,875	
Other operating expenses	170,300	
Total operating expenses		227,175
Income before income tax		$203,125
Income tax expense		58,500
Net income		$144,625

	End of Year	Beginning of Year
Accounts receivable (net)	$ 52,975	$ 46,085
Inventories	136,500	118,625
Prepaid expenses	21,450	23,595
Accounts payable (merchandise creditors)	99,775	92,625
Accrued expenses payable (operating expenses)	28,275	30,875
Income tax payable	6,500	6,500

Prepare the Cash Flows from Operating Activities section of the statement of cash flows, using the direct method.

OBJ. 4

FAI

EX 16-24 Free cash flow

Iglesias Enterprises, Inc. has cash flows from operating activities of $385,000. Cash flows used for investments in property, plant, and equipment totaled $145,000, of which 80% of this investment was used to replace existing capacity.

a. Determine the free cash flow for Iglesias Enterprises, Inc.

b. How might a lender use free cash flow to determine whether or not to give Iglesias Enterprises, Inc. a loan?

OBJ. 4

FAI

EX 16-25 Free cash flow

The financial statements for Nike, Inc., are provided in Appendix C at the end of the text.

a. Determine the free cash flow for the year ended May 31, 2010. Assume that 90% of additions to property, plant and equipment were used to maintain productive capacity.

b. How might a lender use free cash flow to determine whether or not to give Nike, Inc. a loan?

c. Would you feel comfortable giving Nike a loan based on the free cash flow calculated in (a)?

OBJ. 4

FAI

EX 16-26 Free cash flow

Matthias Motors, Inc. has cash flows from operating activities of $900,000. Cash flows used for investments in property, plant, and equipment totaled $550,000, of which 75% of this investment was used to replace existing capacity.

Determine the free cash flow for Matthias Motors, Inc.

Problems Series A

OBJ. 2

✓ Net cash flow from operating activities, $37,140

PR 16-1A Statement of cash flows—indirect method

The comparative balance sheet of Flack Inc. for December 31, 2013 and 2012, is shown as follows:

	Dec. 31, 2013	Dec. 31, 2012
Assets		
Cash	$234,660	$219,720
Accounts receivable (net)	85,440	78,360
Inventories	240,660	231,420
Investments	0	90,000
Land	123,000	0
Equipment	264,420	207,420
Accumulated depreciation—equipment	(62,400)	(55,500)
	$885,780	$771,420
Liabilities and Stockholders' Equity		
Accounts payable (merchandise creditors)	$159,180	$151,860
Accrued expenses payable (operating expenses)	15,840	19,740
Dividends payable	9,000	7,200
Common stock, $1 par	48,000	36,000
Paid-in capital in excess of par—common stock	180,000	105,000
Retained earnings	473,760	451,620
	$885,780	$771,420

The following additional information was taken from the records:

a. The investments were sold for $105,000 cash.

b. Equipment and land were acquired for cash.

c. There were no disposals of equipment during the year.

d. The common stock was issued for cash.

e. There was a $58,140 credit to Retained Earnings for net income.

f. There was a $36,000 debit to Retained Earnings for cash dividends declared.

Instructions

Prepare a statement of cash flows, using the indirect method of presenting cash flows from operating activities.

OBJ. 2

✔ Net cash flow from operating activities, $296,800

PR 16-2A Statement of cash flows—indirect method

The comparative balance sheet of Hinson Enterprises, Inc. at December 31, 2013 and 2012, is as follows:

	Dec. 31, 2013	Dec. 31, 2012
Assets		
Cash	$ 128,275	$ 157,325
Accounts receivable (net)	196,525	211,750
Merchandise inventory	281,400	261,800
Prepaid expenses	11,725	8,400
Equipment	573,125	469,875
Accumulated depreciation—equipment	(149,450)	(115,675)
	$1,041,600	$ 993,475
Liabilities and Stockholders' Equity		
Accounts payable (merchandise creditors)	$ 218,925	$ 207,900
Mortgage note payable	0	294,000
Common stock, $1 par	91,000	21,000
Paid-in capital in excess of par—common stock	455,000	280,000
Retained earnings	276,675	190,575
	$1,041,600	$ 993,475

Additional data obtained from the income statement and from an examination of the accounts in the ledger for 2012 are as follows:

a. Net income, $220,500.

b. Depreciation reported on the income statement, $72,975.

c. Equipment was purchased at a cost of $142,450, and fully depreciated equipment costing $39,200 was discarded, with no salvage realized.

d. The mortgage note payable was not due until 2014, but the terms permitted earlier payment without penalty.

e. 7,000 shares of common stock were issued at $35 for cash.

f. Cash dividends declared and paid, $134,400.

Instructions

Prepare a statement of cash flows, using the indirect method of presenting cash flows from operating activities.

OBJ. 2

✔ Net cash flow from operating activities, $(128,800)

PR 16-3A Statement of cash flows—indirect method

The comparative balance sheet of Mills Engine Co. at December 31, 2013 and 2012, is as follows:

	Dec. 31, 2013	Dec. 31, 2012
Assets		
Cash	$ 714,000	$ 750,400
Accounts receivable (net)	644,700	592,620
Inventories	986,580	904,540
Prepaid expenses	22,820	27,300
Land	245,700	373,100
Buildings	1,137,500	700,700
Accumulated depreciation—buildings	(317,800)	(297,360)
Equipment	398,440	353,640
Accumulated depreciation—equipment	(109,900)	(123,480)
	$3,722,040	$3,281,460

(Continued)

Liabilities and Stockholders' Equity

Accounts payable (merchandise creditors)	$ 717,500	$ 745,360
Bonds payable	210,000	0
Common stock, $20 par	245,000	91,000
Paid-in capital in excess of par—common stock	588,000	434,000
Retained earnings	1,961,540	2,011,100
	$3,722,040	$3,281,460

The noncurrent asset, noncurrent liability, and stockholders' equity accounts for 2010 are as follows:

ACCOUNT *Land* ACCOUNT NO.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance			373,100	
Apr.	20	Realized $117,600 cash from sale		127,400	245,700	

ACCOUNT *Buildings* ACCOUNT NO.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance			700,700	
Apr.	20	Acquired for cash	436,800		1,137,500	

ACCOUNT *Accumulated Depreciation—Buildings* ACCOUNT NO.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance				297,360
Dec.	31	Depreciation for year		20,440		317,800

ACCOUNT *Equipment* ACCOUNT NO.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance			353,640	
	26	Discarded, no salvage		36,400	317,240	
Aug.	11	Purchased for cash	81,200		398,440	

ACCOUNT *Accumulated Depreciation—Equipment* ACCOUNT NO.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance				123,480
	26	Equipment discarded	36,400			87,080
Dec.	31	Depreciation for year		22,820		109,900

ACCOUNT ***Bonds Payable*** **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
May	1	Issued 20-year bonds		210,000		210,000

ACCOUNT ***Common Stock, $20 par*** **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance				91,000
Dec.	7	Issued 7,700 shares of common stock for $40 per share		154,000		245,000

ACCOUNT ***Paid-In Capital in Excess of Par—Common Stock*** **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance				434,000
Dec.	7	Issued 7,700 shares of common stock for $40 per share		154,000		588,000

ACCOUNT ***Retained Earnings*** **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance				2,011,100
Dec.	31	Net loss	24,360			1,986,740
	31	Cash dividends	25,200			1,961,540

Instructions

Prepare a statement of cash flows, using the indirect method of presenting cash flows from operating activities.

OBJ. 3

✔ Net cash flow from operating activities, $352,320

PR 16-4A Statement of cash flows—direct method

The comparative balance sheet of Rowe Products Inc. for December 31, 2013 and 2012, is as follows:

	Dec. 31, 2013	Dec. 31, 2012
Assets		
Cash	$ 772,080	$ 815,280
Accounts receivable (net)	680,160	656,880
Inventories	1,213,200	1,179,360
Investments	0	288,000
Land	624,000	0
Equipment	1,056,000	816,000
Accumulated depreciation	(293,280)	(240,480)
	$4,052,160	$3,515,040

(Continued)

Liabilities and Stockholders' Equity		
Accounts payable (merchandise creditors)	$ 926,160	$ 898,080
Accrued expenses payable (operating expenses)	76,080	84,960
Dividends payable	10,560	7,680
Common stock, $10 par	177,600	38,400
Paid-in capital in excess of par—common stock	369,600	230,400
Retained earnings	2,492,160	2,255,520
	$4,052,160	$3,515,040

The income statement for the year ended December 31, 2012, is as follows:

Sales		$7,176,000
Cost of merchandise sold		2,942,400
Gross profit		$4,233,600
Operating expenses:		
Depreciation expense	$ 52,800	
Other operating expenses	3,720,000	
Total operating expenses		3,772,800
Operating income		$ 460,800
Other expense:		
Loss on sale of investments		(76,800)
Income before income tax		$ 384,000
Income tax expense		123,360
Net income		$ 260,640

The following additional information was taken from the records:

a. Equipment and land were acquired for cash.
b. There were no disposals of equipment during the year.
c. The investments were sold for $211,200 cash.
d. The common stock was issued for cash.
e. There was a $24,000 debit to Retained Earnings for cash dividends declared.

Instructions

Prepare a statement of cash flows, using the direct method of presenting cash flows from operating activities.

OBJ. 3

✔ Net cash flow from operating activities, $37,140

PR 16-5A Statement of cash flows—direct method applied to PR 16-1A

The comparative balance sheet of Flack Inc. for December 31, 2013 and 2012, is as follows:

	Dec. 31, 2013	Dec. 31, 2012
Assets		
Cash	$234,660	$219,720
Accounts receivable (net)	85,440	78,360
Inventories	240,660	231,420
Investments	0	90,000
Land	123,000	0
Equipment	264,420	207,420
Accumulated depreciation—equipment	(62,400)	(55,500)
	$885,780	$771,420
Liabilities and Stockholders' Equity		
Accounts payable (merchandise creditors)	$159,180	$151,860
Accrued expenses payable (operating expenses)	15,840	19,740
Dividends payable	9,000	7,200
Common stock, $1 par	48,000	36,000
Paid-in capital in excess of par—common stock	180,000	105,000
Retained earnings	473,760	451,620
	$885,780	$771,420

The income statement for the year ended December 31, 2013, is as follows:

Sales		$1,508,520
Cost of merchandise sold		928,320
Gross profit		$ 580,200
Operating expenses:		
Depreciation expense	$ 6,900	
Other operating expenses	491,400	
Total operating expenses		498,300
Operating income		$ 81,900
Other income:		
Gain on sale of investments		15,000
Income before income tax		$ 96,900
Income tax expense		38,760
Net income		$ 58,140

The following additional information was taken from the records:

a. The investments were sold for $105,000 cash.
b. Equipment and land were acquired for cash.
c. There were no disposals of equipment during the year.
d. The common stock was issued for cash.
e. There was a $36,000 debit to Retained Earnings for cash dividends declared.

Instructions

Prepare a statement of cash flows, using the direct method of presenting cash flows from operating activities.

Problems Series B

OBJ. 2

✔ Net cash flow from operating activities, $246,720

PR 16-1B Statement of cash flows—indirect method

The comparative balance sheet of Juras Equipment Co. for December 31, 2013 and 2012, is as follows:

	Dec. 31, 2013	Dec. 31, 2012
Assets		
Cash	$ 99,840	$ 67,680
Accounts receivable (net)	292,560	265,680
Inventories	421,440	409,200
Investments	0	144,000
Land	417,600	0
Equipment	619,200	505,440
Accumulated depreciation	(139,920)	(119,040)
	$1,710,720	$1,272,960
Liabilities and Stockholders' Equity		
Accounts payable (merchandise creditors)	$ 290,400	$ 274,080
Accrued expenses payable (operating expenses)	43,200	37,920
Dividends payable	36,000	28,800
Common stock, $1 par	162,000	144,000
Paid-in capital in excess of par—common stock	594,000	288,000
Retained earnings	585,120	500,160
	$1,710,720	$1,272,960

The following additional information was taken from the records of Juras Equipment:

a. Equipment and land were acquired for cash.
b. There were no disposals of equipment during the year.
c. The investments were sold for $129,600 cash.

d. The common stock was issued for cash.
e. There was a $228,960 credit to Retained Earnings for net income.
f. There was a $144,000 debit to Retained Earnings for cash dividends declared.

Instructions

Prepare a statement of cash flows, using the indirect method of presenting cash flows from operating activities.

OBJ. 2

✔ Net cash flow from operating activities, $481,200

PR 16-2B Statement of cash flows—indirect method

The comparative balance sheet of Beets Industries, Inc. at December 31, 2013 and 2012, is as follows:

	Dec. 31, 2013	Dec. 31, 2012
Assets		
Cash	$ 379,920	$ 309,360
Accounts receivable (net)	570,240	507,600
Inventories	761,040	876,480
Prepaid expenses	27,120	21,600
Land	259,200	259,200
Buildings	1,468,800	972,000
Accumulated depreciation—buildings	(399,600)	(355,320)
Machinery and equipment	669,600	669,600
Accumulated depreciation—machinery and equipment	(183,600)	(164,160)
Patents	91,680	103,680
	$3,644,400	$3,200,040
Liabilities and Stockholders' Equity		
Accounts payable (merchandise creditors)	$ 717,840	$ 794,640
Dividends payable	28,080	21,600
Salaries payable	67,680	74,640
Mortgage note payable, due 2017	192,000	0
Bonds payable	0	336,000
Common stock, $2 par	99,200	43,200
Paid-in capital in excess of par—common stock	388,000	108,000
Retained earnings	2,151,600	1,821,960
	$3,644,400	$3,200,040

An examination of the income statement and the accounting records revealed the following additional information applicable to 2013:

a. Net income, $441,960.
b. Depreciation expense reported on the income statement: buildings, $44,280; machinery and equipment, $19,440.
c. Patent amortization reported on the income statement, $12,000.
d. A building was constructed for $496,800.
e. A mortgage note for $192,000 was issued for cash.
f. 28,000 shares of common stock were issued at $12 in exchange for the bonds payable.
g. Cash dividends declared, $112,320.

Instructions

Prepare a statement of cash flows, using the indirect method of presenting cash flows from operating activities.

OBJ. 2

✔ Net cash flow from operating activities, $70,200

PR 16-3B Statement of cash flows—indirect method

The comparative balance sheet of Wen Technology, Inc. at December 31, 2013 and 2012, is as follows:

	Dec. 31, 2013	Dec. 31, 2012
Assets		
Cash	$ 450,900	$ 506,700
Accounts receivable (net)	1,056,600	914,400
Inventories	1,377,900	1,298,700
Prepaid expenses	27,900	39,600
Land	1,485,000	2,079,000
Buildings	2,970,000	1,485,000
Accumulated depreciation—buildings	(595,800)	(549,000)
Equipment	990,900	794,700
Accumulated depreciation—equipment	(199,800)	(243,000)
	$7,563,600	$6,326,100
Liabilities and Stockholders' Equity		
Accounts payable (merchandise creditors)	$ 891,000	$ 946,800
Income tax payable	39,600	32,400
Bonds payable	495,000	0
Common stock, $10 par	378,000	270,000
Paid-in capital in excess of par—common stock	1,701,000	1,215,000
Retained earnings	4,059,000	3,861,900
	$7,563,600	$6,326,100

The noncurrent asset, noncurrent liability, and stockholders' equity accounts for 2013 are as follows:

ACCOUNT ***Land*** **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance			2,079,000	
Apr.	20	Realized $684,000 cash from sale		594,000	1,485,000	

ACCOUNT ***Buildings*** **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance			1,485,000	
Apr.	20	Acquired for cash	1,485,000		2,970,000	

ACCOUNT ***Accumulated Depreciation—Buildings*** **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance				549,000
Dec.	31	Depreciation for year		46,800		595,800

ACCOUNT *Equipment* **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance			794,700	
	26	Discarded, no salvage		99,000	695,700	
Aug.	11	Purchased for cash	295,200		990,900	

ACCOUNT *Accumulated Depreciation—Equipment* **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance				243,000
	26	Equipment discarded	99,000			144,000
Dec.	31	Depreciation for year		55,800		199,800

ACCOUNT *Bonds Payable* **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
May	1	Issued 20-year bonds		495,000		495,000

ACCOUNT *Common Stock, $10 par* **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance				270,000
Dec.	7	Issued 10,800 shares of common stock for $10 per share		108,000		378,000

ACCOUNT *Paid-In Capital in Excess of Par—Common Stock* **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance				1,215,000
Dec.	7	Issued 10,800 shares of common stock for $10 per share		486,000		1,701,000

ACCOUNT *Retained Earnings* **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance	
					Debit	Credit
2013						
Jan.	1	Balance				3,861,900
Dec.	31	Net income		315,900		4,177,800
	31	Cash dividends	118,800			4,059,000

Instructions

Prepare a statement of cash flows, using the indirect method of presenting cash flows from operating activities.

OBJ. 3

✔ Net cash flow from operating activities, $254,610

PR 16-4B Statement of cash flows—direct method

The comparative balance sheet of Middaugh Restaurant Supplies Inc. for December 31, 2013 and 2012, is as follows:

	Dec. 31, 2013	Dec. 31, 2012
Assets		
Cash	$ 330,960	$ 341,550
Accounts receivable (net)	496,320	457,200
Inventories	697,200	681,900
Investments	0	216,000
Land	480,000	0
Equipment	612,000	492,000
Accumulated depreciation	(240,750)	(184,200)
	$2,375,730	$2,004,450
Liabilities and Stockholders' Equity		
Accounts payable (merchandise creditors)	$ 540,000	$ 483,300
Accrued expenses payable (operating expenses)	33,900	39,600
Dividends payable	50,400	45,600
Common stock, $10 par	108,000	15,000
Paid-in capital in excess of par—common stock	364,500	225,000
Retained earnings	1,278,930	1,195,950
	$2,375,730	$2,004,450

The income statement for the year ended December 31, 2012, is as follows:

Sales		$2,256,000
Cost of merchandise sold		1,176,000
Gross profit		$1,080,000
Operating expenses:		
Depreciation expense	$ 56,550	
Other operating expenses	672,420	
Total operating expenses		728,970
Operating income		$ 351,030
Other income:		
Gain on sale of investments		78,000
Income before income tax		$ 429,030
Income tax expense		149,550
Net income		$ 279,480

The following additional information was taken from the records:

a. Equipment and land were acquired for cash.

b. There were no disposals of equipment during the year.

c. The investments were sold for $294,000 cash.

d. The common stock was issued for cash.

e. There was a $196,500 debit to Retained Earnings for cash dividends declared.

Instructions

Prepare a statement of cash flows, using the direct method of presenting cash flows from operating activities.

OBJ. 3

✔ Net cash flow from operating activities, $246,720

PR 16-5B Statement of cash flows—direct method applied to PR 16-1B

The comparative balance sheet of Juras Equipment Co. for Dec. 31, 2013 and 2012, is:

	Dec. 31, 2013	Dec. 31, 2012
Assets		
Cash	$ 99,840	$ 67,680
Accounts receivable (net)	292,560	265,680
Inventories	421,440	409,200
Investments	0	144,000
Land	417,600	0
Equipment	619,200	505,440
Accumulated depreciation	(139,920)	(119,040)
	$1,710,720	$1,272,960
Liabilities and Stockholders' Equity		
Accounts payable (merchandise creditors)	$ 290,400	$ 274,080
Accrued expenses payable (operating expenses)	43,200	37,920
Dividends payable	36,000	28,800
Common stock, $1 par	162,000	144,000
Paid-in capital in excess of par—common stock	594,000	288,000
Retained earnings	585,120	500,160
	$1,710,720	$1,272,960

The income statement for the year ended December 31, 2013, is as follows:

Sales		$3,246,048
Cost of merchandise sold		1,997,568
Gross profit		$1,248,480
Operating expenses:		
Depreciation expense	$ 20,880	
Other operating expenses	831,600	
Total operating expenses		852,480
Operating income		$ 396,000
Other expenses:		
Loss on sale of investments		(14,400)
Income before income tax		$ 381,600
Income tax expense		152,640
Net income		$ 228,960

The following additional information was taken from the records:

a. Equipment and land were acquired for cash.

b. There were no disposals of equipment during the year.

c. The investments were sold for $129,600 cash.

d. The common stock was issued for cash.

e. There was a $144,000 debit to Retained Earnings for cash dividends declared.

Instructions

Prepare a statement of cash flows, using the direct method of presenting cash flows from operating activities.

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA 16-1 Cash flow from operating activities

Omar Company had the following selected income statement information for the year ended December 31, 2013:

Net income	$310,000
Depreciation expense	48,000
Loss on sale of land	21,000

Comparative noncash current assets and current liabilities for December 31, 2013 and 2012, are as follows:

	2013	2012
Accounts receivable	132,400	145,200
Inventories	256,000	231,900
Accounts payable	194,600	209,800
Accrued expenses	89,200	94,200
Interest payable	24,500	20,000

a. Open the Excel file *SA16-1_2e.*

b. Use your spreadsheet to prepare the cash flows from operating activities section of the statement of cash flows.

c. When you have completed the section, perform a "save as," replacing the entire file name with the following:

SA16-1_2e[your first name initial]_[your last name]

SA 16-2 Cash flow from operating activities

Troy Company had the following selected income statement information for the year ended December 31, 2013:

Net income	$79,000
Amortization expense	14,500
Gain on sale of land	5,600

Comparative noncash current assets and current liabilities at the end of the two latest years are as follows:

	2013	2012
Accounts receivable	57,300	68,900
Inventories	42,100	47,300
Prepaid expenses	12,300	10,100
Accounts payable	37,900	35,100
Accrued expenses	21,500	24,600
Income taxes payable	15,400	13,200

Use your spreadsheet to prepare the cash flows from operating activities section of the statement of cash flows.

a. Open the Excel file *SA16-2_2e.*

b. Use your spreadsheet to prepare the cash flows from operating activities section of the statement of cash flows.

c. When you have completed the section, perform a "save as," replacing the entire file name with the following:

SA16-2_2e[your first name initial]_[your last name]

SA 16-3 Cash flow from operating activities

The income statement for the McIntyre Company is as follows for the year ended December 31, 2013:

McIntyre Company
Income Statement
For the Year Ended December 31, 2013

Sales		$325,000
Cost of merchandise sold		143,000
Gross profit		$182,000
Operating expenses:		
Salaries expense	$45,600	
Sales expenses	34,100	
Depreciation expense	13,200	
Total operating expenses		92,900
Income from operations		$ 89,100
Other expense		
Loss on sale of investments		22,000
Income before income tax		$ 67,100
Income tax expense		25,000
Net income		$ 42,100

Increases and decreases in noncash current assets and liabilities for the comparative balances sheets dated December 31, 2013 and 2012, are as follows:

	Increase/(Decrease)
Accounts receivable	$ (2,900)
Inventories	5,800
Prepaid expenses	(2,100)
Accounts payable	(12,400)
Accrued expenses	(3,400)
Income taxes payable	1,500

a. Open the Excel file *SA16-3_2e*.

b. Use your spreadsheet to prepare the cash flows from operating activities section of the statement of cash flows.

c. When you have completed the section, perform a "save as," replacing the entire file name with the following:

SA16-3_2e[your first name initial]_[your last name]

CHAPTER

17

P Photo/Matt York

Financial Statement Analysis

Nike, Inc.

“Just do it.” These three words identify one of the most recognizable brands in the world, **Nike**. While this phrase inspires athletes to "compete and achieve their potential," it also defines the company.

Nike began in 1964 as a partnership between University of Oregon track coach Bill Bowerman and one of his former student-athletes, Phil Knight. The two began by selling shoes imported from Japan out of the back of Knight's car to athletes at track and field events. As sales grew, the company opened retail outlets, calling itself **Blue Ribbon Sports**. The company also began to develop its own shoes. In 1971, the company commissioned a graphic design student at Portland State University to develop the swoosh logo for a fee of $35. In 1978, the company changed its name to Nike, and in 1980, it sold its first shares of stock to the public.

Nike would have been a great company to invest in at the time. If you had invested in Nike's common stock back in 1990, you would have paid $5.00 per share. As of July 2010, Nike's stock was worth $70.15 per share. Unfortunately, you can't invest using hindsight.

How can you select companies in which to invest? Like any significant purchase, you should do some research to guide your investment decision. If you were buying a car, for example, you might go to **Edmunds.com** to obtain reviews, ratings, prices, specifications, options, and fuel economies to evaluate different vehicles. In selecting companies to invest in, you can use financial analysis to gain insight into a company's past performance and future prospects. This chapter describes and illustrates common financial data that can be analyzed to assist you in making investment decisions such as whether or not to invest in Nike's stock.

Source: http://www.nikebiz.com/.

Learning Objectives

After studying this chapter, you should be able to:	*Example Exercises*	*Page*
OBJ. 1 Describe basic financial statement analytical methods.		
Basic Analytical Methods		
Horizontal Analysis	EE 17-1	783
Vertical Analysis	EE 17-2	785
Common-Sized Statements		
Other Analytical Measures		
OBJ. 2 Use financial statement analysis to assess the solvency of a business.		
Solvency Analysis		
Current Position Analysis	EE 17-3	789
Accounts Receivable Analysis	EE 17-4	790
Inventory Analysis	EE 17-5	792
Ratio of Fixed Assets to Long-Term Liabilities		
Ratio of Liabilities to Stockholders' Equity	EE 17-6	793
Number of Times Interest Charges Earned	EE 17-7	794
OBJ. 3 Use financial statement analysis to assess the profitability of a business.		
Profitability Analysis		
Ratio of Net Sales to Assets	EE 17-8	795
Rate Earned on Total Assets	EE 17-9	796
Rate Earned on Stockholders' Equity		
Rate Earned on Common Stockholders' Equity	EE 17-10	798
Earnings per Share on Common Stock		
Price-Earnings Ratio	EE 17-11	800
Divdends per Share		
Divdend Yield		
Summary of Analytical Measures		
OBJ. 4 Describe the contents of corporate annual reports.		
Corporate Annual Reports		
Management Discussion and Analysis		
Report on Internal Control		
Report on Fairness of the Financial Statements		

At a Glance 17 Page 808

OBJ. 1 Describe basic financial statement analytical methods.

Basic Analytical Methods

Users analyze a company's financial statements using a variety of analytical methods. Three such methods are as follows:

1. Horizontal analysis
2. Vertical analysis
3. Common-sized statements

Horizontal Analysis

The percentage analysis of increases and decreases in related items in comparative financial statements is called **horizontal analysis**. Each item on the most recent statement is compared with the same item on one or more earlier statements in terms of the following:

1. *Amount* of increase or decrease
2. *Percent* of increase or decrease

When comparing statements, the earlier statement is normally used as the base year for computing increases and decreases.

Exhibit 1 illustrates horizontal analysis for the December 31, 2012 and 2011, balance sheets of Lincoln Company. In Exhibit 1, the December 31, 2011, balance sheet (the earliest year presented) is used as the base year.

Exhibit 1 indicates that total assets decreased by $91,000 (7.4%), liabilities decreased by $133,000 (30.0%), and stockholders' equity increased by $42,000 (5.3%).

EXHIBIT 1

Comparative Balance Sheet—Horizontal Analysis

Lincoln Company
Comparative Balance Sheet
December 31, 2012 and 2011

	Dec. 31, 2012	Dec. 31, 2011	Increase (Decrease) Amount	Increase (Decrease) Percent
Assets				
Current assets	$ 550,000	$ 533,000	$ 17,000	3.2%
Long-term investments	95,000	177,500	(82,500)	(46.5%)
Property, plant, and equipment (net)	444,500	470,000	(25,500)	(5.4%)
Intangible assets	50,000	50,000	—	—
Total assets	$1,139,500	$1,230,500	$ (91,000)	(7.4%)
Liabilities				
Current liabilities	$ 210,000	$ 243,000	$ (33,000)	(13.6%)
Long-term liabilities	100,000	200,000	(100,000)	(50.0%)
Total liabilities	$ 310,000	$ 443,000	$(133,000)	(30.0%)
Stockholders' Equity				
Preferred 6% stock, $100 par	$ 150,000	$ 150,000	—	—
Common stock, $10 par	500,000	500,000	—	—
Retained earnings	179,500	137,500	$ 42,000	30.5%
Total stockholders' equity	$ 829,500	$ 787,500	$ 42,000	5.3%
Total liabilities and stockholders' equity	$1,139,500	$1,230,500	$ (91,000)	(7.4%)

Since the long-term investments account decreased by $82,500, it appears that most of the decrease in long-term liabilities of $100,000 was achieved through the sale of long-term investments.

The balance sheets in Exhibit 1 may be expanded or supported by a separate schedule that includes the individual asset and liability accounts. For example, Exhibit 2 is a supporting schedule of Lincoln's current asset accounts.

Exhibit 2 indicates that while cash and temporary investments increased, accounts receivable and inventories decreased. The decrease in accounts receivable could be caused by improved collection policies, which would increase cash. The decrease in inventories could be caused by increased sales.

EXHIBIT 2

Comparative Schedule of Current Assets—Horizontal Analysis

Lincoln Company
Comparative Schedule of Current Assets
December 31, 2012 and 2011

	Dec. 31, 2012	Dec. 31, 2011	Increase (Decrease) Amount	Increase (Decrease) Percent
Cash	$ 90,500	$ 64,700	$ 25,800	39.9%
Temporary investments	75,000	60,000	15,000	25.0%
Accounts receivable (net)	115,000	120,000	(5,000)	(4.2%)
Inventories	264,000	283,000	(19,000)	(6.7%)
Prepaid expenses	5,500	5,300	200	3.8%
Total current assets	$550,000	$533,000	$ 17,000	3.2%

Exhibit 3 illustrates horizontal analysis for the 2012 and 2011 income statements of Lincoln Company. Exhibit 3 indicates an increase in sales of $296,500, or 24.0%. However, the percentage increase in sales of 24.0% was accompanied by an even greater percentage increase in the cost of goods (merchandise) sold of 27.2%.[1] Thus, gross profit increased by only 19.7% rather than by the 24.0% increase in sales.

[1] The term *cost of goods sold* is often used in practice in place of *cost of merchandise sold*. Such usage is followed in this chapter.

EXHIBIT 3

Comparative Income Statement—Horizontal Analysis

Lincoln Company
Comparative Income Statement
For the Years Ended December 31, 2012 and 2011

			Increase (Decrease)	
	2012	**2011**	**Amount**	**Percent**
Sales	$1,530,500	$1,234,000	$296,500	24.0%
Sales returns and allowances	32,500	34,000	(1,500)	(4.4%)
Net sales	$1,498,000	$1,200,000	$298,000	24.8%
Cost of goods sold	1,043,000	820,000	223,000	27.2%
Gross profit	$ 455,000	$ 380,000	$ 75,000	19.7%
Selling expenses	$ 191,000	$ 147,000	$ 44,000	29.9%
Administrative expenses	104,000	97,400	6,600	6.8%
Total operating expenses	$ 295,000	$ 244,400	$ 50,600	20.7%
Income from operations	$ 160,000	$ 135,600	$ 24,400	18.0%
Other income	8,500	11,000	(2,500)	(22.7%)
	$ 168,500	$ 146,600	$ 21,900	14.9%
Other expense (interest)	6,000	12,000	(6,000)	(50.0%)
Income before income tax	$ 162,500	$ 134,600	$ 27,900	20.7%
Income tax expense	71,500	58,100	13,400	23.1%
Net income	$ 91,000	$ 76,500	$ 14,500	19.0%

Exhibit 3 also indicates that selling expenses increased by 29.9%. Thus, the 24.0% increases in sales could have been caused by an advertising campaign, which increased selling expenses. Administrative expenses increased by only 6.8%, total operating expenses increased by 20.7%, and income from operations increased by 18.0%. Interest expense decreased by 50.0%. This decrease was probably caused by the 50.0% decrease in long-term liabilities (Exhibit 1). Overall, net income increased by 19.0%, a favorable result.

Exhibit 4 illustrates horizontal analysis for the 2012 and 2011 retained earnings statements of Lincoln Company. Exhibit 4 indicates that retained earnings increased by 30.5% for the year. The increase is due to net income of $91,000 for the year, less dividends of $49,000.

EXHIBIT 4

Comparative Retained Earnings Statement—Horizontal Analysis

Lincoln Company
Comparative Retained Earnings Statement
For the Years Ended December 31, 2012 and 2011

			Increase (Decrease)	
	2012	**2011**	**Amount**	**Percent**
Retained earnings, January 1	$137,500	$100,000	$37,500	37.5%
Net income for the year	91,000	76,500	14,500	19.0%
Total	$228,500	$176,500	$52,000	29.5%
Dividends:				
On preferred stock	$ 9,000	$ 9,000	—	—
On common stock	40,000	30,000	$10,000	33.3%
Total	$ 49,000	$ 39,000	$10,000	25.6%
Retained earnings, December 31	$179,500	$137,500	$42,000	30.5%

Example Exercise 17-1 Horizontal Analysis

OBJ. 1

The comparative cash and accounts receivable balances for a company are provided below.

	Dec. 31, 2012	Dec. 31, 2011
Cash	$62,500	$50,000
Accounts receivable (net)	74,400	80,000

Based on this information, what is the amount and percentage of increase or decrease that would be shown on a balance sheet with horizontal analysis?

Follow My Example 17-1

Cash	$12,500 increase ($62,500 – $50,000), or 25%
Accounts receivable	$5,600 decrease ($74,400 – $80,000), or (7%)

Practice Exercises: **PE 17-1A, PE 17-1B**

Vertical Analysis

The percentage analysis of the relationship of each component in a financial statement to a total within the statement is called **vertical analysis**. Although vertical analysis is applied to a single statement, it may be applied on the same statement over time. This enhances the analysis by showing how the percentages of each item have changed over time.

In vertical analysis of the balance sheet, the percentages are computed as follows:

1. Each asset item is stated as a percent of the total assets.
2. Each liability and stockholders' equity item is stated as a percent of the total liabilities and stockholders' equity.

Exhibit 5 illustrates the vertical analysis of the December 31, 2012 and 2011, balance sheets of Lincoln Company. Exhibit 5 indicates that current assets have increased from 43.3% to 48.3% of total assets. Long-term investments decreased from 14.4% to 8.3% of total assets. Stockholders' equity increased from 64.0% to 72.8% with a comparable decrease in liabilities.

EXHIBIT 5

Comparative Balance Sheet—Vertical Analysis

Lincoln Company
Comparative Balance Sheet
December 31, 2012 and 2011

	Dec. 31, 2012		Dec. 31, 2011	
	Amount	**Percent**	**Amount**	**Percent**
Assets				
Current assets	$ 550,000	48.3%	$ 533,000	43.3%
Long-term investments	95,000	8.3	177,500	14.4
Property, plant, and equipment (net)	444,500	39.0	470,000	38.2
Intangible assets	50,000	4.4	50,000	4.1
Total assets	$1,139,500	100.0%	$1,230,500	100.0%
Liabilities				
Current liabilities	$ 210,000	18.4%	$ 243,000	19.7%
Long-term liabilities	100,000	8.8	200,000	16.3
Total liabilities	$ 310,000	27.2%	$ 443,000	36.0%
Stockholders' Equity				
Preferred 6% stock, $100 par	$ 150,000	13.2%	$ 150,000	12.2%
Common stock, $10 par	500,000	43.9	500,000	40.6
Retained earnings	179,500	15.7	137,500	11.2
Total stockholders' equity	$ 829,500	72.8%	$ 787,500	64.0%
Total liabilities and stockholders' equity	$1,139,500	100.0%	$1,230,500	100.0%

In a vertical analysis of the income statement, each item is stated as a percent of net sales. Exhibit 6 illustrates the vertical analysis of the 2012 and 2011 income statements of Lincoln Company.

EXHIBIT 6

Comparative Income Statement—Vertical Analysis

Lincoln Company
Comparative Income Statement
For the Years Ended December 31, 2012 and 2011

	2012		2011	
	Amount	**Percent**	**Amount**	**Percent**
Sales	$1,530,500	102.2%	$1,234,000	102.8%
Sales returns and allowances	32,500	2.2	34,000	2.8
Net sales	$1,498,000	100.0%	$1,200,000	100.0%
Cost of goods sold	1,043,000	69.6	820,000	68.3
Gross profit	$ 455,000	30.4%	$ 380,000	31.7%
Selling expenses	$ 191,000	12.8%	$ 147,000	12.3%
Administrative expenses	104,000	6.9	97,400	8.1
Total operating expenses	$ 295,000	19.7%	$ 244,400	20.4%
Income from operations	$ 160,000	10.7%	$ 135,600	11.3%
Other income	8,500	0.6	11,000	0.9
	$ 168,500	11.3%	$ 146,600	12.2%
Other expense (interest)	6,000	0.4	12,000	1.0
Income before income tax	$ 162,500	10.9%	$ 134,600	11.2%
Income tax expense	71,500	4.8	58,100	4.8
Net income	$ 91,000	6.1%	$ 76,500	6.4%

Exhibit 6 indicates a decrease in the gross profit rate from 31.7% in 2011 to 30.4% in 2012. Although this is only a 1.3 percentage point (31.7% – 30.4%) decrease, in dollars of potential gross profit, it represents a decrease of about $19,500 (1.3% × $1,498,000). Thus, a small percentage decrease can have a large dollar effect.

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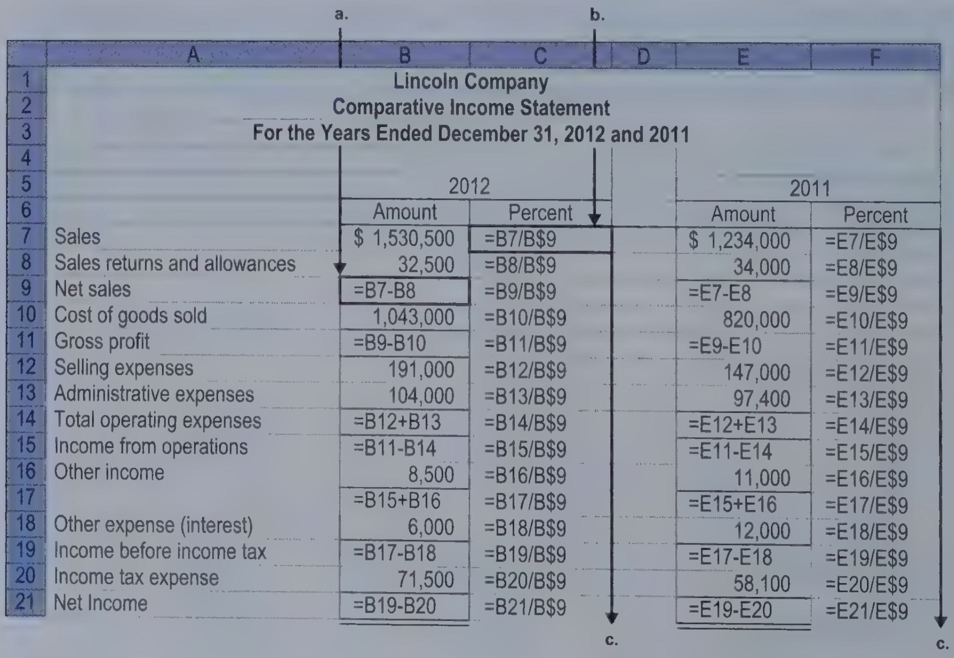
All of the analyses illustrated in this objective are well suited to a spreadsheet solution approach because of the repetitive calculations across rows and columns. However, for brevity we will illustrate only the vertical analysis of comparative income statements. The formulas are as follows:



	A	B	C	D	E	F
1	Lincoln Company					
2	Comparative Income Statement					
3	For the Years Ended December 31, 2012 and 2011					
4						
5		2012			2011	
6		Amount	Percent		Amount	Percent
7	Sales	$ 1,530,500	=B7/B$9		$ 1,234,000	=E7/E$9
8	Sales returns and allowances	32,500	=B8/B$9		34,000	=E8/E$9
9	Net sales	=B7-B8	=B9/B$9		=E7-E8	=E9/E$9
10	Cost of goods sold	1,043,000	=B10/B$9		820,000	=E10/E$9
11	Gross profit	=B9-B10	=B11/B$9		=E9-E10	=E11/E$9
12	Selling expenses	191,000	=B12/B$9		147,000	=E12/E$9
13	Administrative expenses	104,000	=B13/B$9		97,400	=E13/E$9
14	Total operating expenses	=B12+B13	=B14/B$9		=E12+E13	=E14/E$9
15	Income from operations	=B11-B14	=B15/B$9		=E11-E14	=E15/E$9
16	Other income	8,500	=B16/B$9		11,000	=E16/E$9
17		=B15+B16	=B17/B$9		=E15+E16	=E17/E$9
18	Other expense (interest)	6,000	=B18/B$9		12,000	=E18/E$9
19	Income before income tax	=B17-B18	=B19/B$9		=E17-E18	=E19/E$9
20	Income tax expense	71,500	=B20/B$9		58,100	=E20/E$9
21	Net Income	=B19-B20	=B21/B$9		=E19-E20	=E21/E$9

a. Enter the formulas for the sub-totals and totals within the income statement at appropriate cell locations, such as B9. The formulas entered in column B can be copied into the adjacent cell location in column E, one-by-one, to save time. For example, the formula in B9 can be copied to E9; B11 copied to E11; and so on.

b. Insert the formula in cell C7 for the vertical percentage computation, =B7/B$9. The absolute cell address ($ sign) is placed in front of the row 9 number. This is because the sales denominator remains fixed when the formula is copied across the rows.

c. Copy the formula in cell C7 to C8:C21 and F7:F21. Column C and F calculations are formatted as a percent with one decimal place.

Try*It* Go to the hands-on ***Excel Tutor*** for this example! (Note: The example here and throughout this chapter are contained in a **single** tutorial.)

Try*It* This Excel Success example uses an Excel function referred to as cell referencing. Go to the ***Excel Tutor*** titled **Absolute & Relative Cell References** for additional help with this useful Excel function!

Example Exercise 17-2 Vertical Analysis

OBJ. 1

Income statement information for Lee Corporation is provided below.

Sales	$100,000
Cost of goods sold	65,000
Gross profit	$ 35,000

Prepare a vertical analysis of the income statement for Lee Corporation.

Follow My Example 17-2

	Amount	Percentage	
Sales	$100,000	100%	($100,000 ÷ $100,000)
Cost of goods sold	65,000	65	($65,000 ÷ $100,000)
Gross profit	$ 35,000	35%	($35,000 ÷ $100,000)

Practice Exercises: **PE 17-2A, PE 17-2B**

Common-Sized Statements

In a **common-sized statement**, all items are expressed as percentages with no dollar amounts shown. Common-sized statements are often useful for comparing one company with another or for comparing a company with industry averages.

Exhibit 7 illustrates common-sized income statements for Lincoln Company and Madison Corporation. Exhibit 7 indicates that Lincoln Company has a slightly higher rate of gross profit (30.4%) than Madison Corporation (30.0%). However, Lincoln has a higher percentage of selling expenses (12.8%) and administrative expenses (6.9%) than does Madison (11.5% and 4.1%). As a result, the income from operations of Lincoln (10.7%) is less than that of Madison (14.4%).

The unfavorable difference of 3.7 (14.4% – 10.7%) percentage points in income from operations would concern the managers and other stakeholders of Lincoln. The underlying causes of the difference should be investigated and possibly corrected. For example, Lincoln Company may decide to outsource some of its administrative duties so that its administrative expenses are more comparative to that of Madison Corporation.

Other Analytical Measures

Other relationships may be expressed in ratios and percentages. Often, these relationships are compared within the same statement and, thus, are a type of vertical analysis. Comparing these items with items from earlier periods is a type of horizontal analysis.

EXHIBIT 7

Common-Sized Income Statement

	Lincoln Company	Madison Corporation
Sales	102.2%	102.3%
Sales returns and allowances	2.2	2.3
Net sales	100.0%	100.0%
Cost of goods sold	69.6	70.0
Gross profit	30.4%	30.0%
Selling expenses	12.8%	11.5%
Administrative expenses	6.9	4.1
Total operating expenses	19.7%	15.6%
Income from operations	10.7%	14.4%
Other income	0.6	0.6
	11.3%	15.0%
Other expense (interest)	0.4	0.5
Income before income tax	10.9%	14.5%
Income tax expense	4.8	5.5
Net income	6.1%	9.0%

Analytical measures are not a definitive conclusion. They are only guides in evaluating financial and operating data. Many other factors, such as trends in the industry and general economic conditions, should also be considered when analyzing a company.

OBJ 2 Use financial statement analysis to assess the solvency of a business.

Solvency Analysis

All users of financial statements are interested in the ability of a company to do the following:

1. Meet its financial obligations (debts), called **solvency**
2. Earn income, called **profitability**

Note:
Solvency analysis focuses on the ability of a business to pay its current and noncurrent liabilities.

Solvency and profitability are interrelated. For example, a company that cannot pay its debts will have difficulty obtaining credit. A lack of credit will, in turn, limit the company's ability to purchase merchandise or expand operations, which decreases its profitability.

Solvency analysis focuses on the ability of a company to pay its liabilities. It is normally assessed using the following:

1. Current position analysis
    - Working capital
    - Current ratio
    - Quick ratio
2. Accounts receivable analysis
    - Accounts receivable turnover
    - Number of days' sales in receivables
3. Inventory analysis
    - Inventory turnover
    - Number of days' sales in inventory
4. The ratio of fixed assets to long-term liabilities
5. The ratio of liabilities to stockholders' equity
6. The number of times interest charges are earned

One popular printed source for industry ratios is *Annual Statement Studies* from Risk Management Association. Online analysis is available from Zacks Investment Research site, which is linked to the text's Web site at **www.cengage.com/accounting/reeve.**

The Lincoln Company financial statements presented earlier are used to illustrate the preceding analyses.

Current Position Analysis

A company's ability to pay its current liabilities is called **current position analysis.** It is of special interest to short-term creditors and includes the computation and analysis of the following:

1. Working capital
2. Current ratio
3. Quick ratio

Working Capital A company's **working capital** is computed as follows:

Working Capital = Current Assets – Current Liabilities

To illustrate, the working capital for Lincoln Company for 2012 and 2011 is computed below.

	2012	2011
Current assets	$550,000	$533,000
Less current liabilities	210,000	243,000
Working capital	$340,000	$290,000

The working capital is used to evaluate a company's ability to pay current liabilities. A company's working capital is often monitored monthly, quarterly, or yearly by creditors and other debtors. However, it is difficult to use working capital to compare companies of different sizes. For example, working capital of $250,000 may be adequate for a local hardware store, but it would be inadequate for The Home Depot.

Current Ratio The **current ratio**, sometimes called the *working capital ratio* is computed as follows:

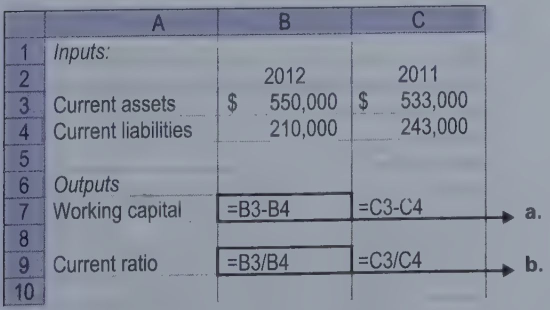
$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

To illustrate, the current ratio for Lincoln Company is computed below.

	2012	2011
Current assets	$550,000	$533,000
Current liabilities	$210,000	$243,000
Current ratio	2.6 ($550,000/$210,000)	2.2 ($533,000/$243,000)

The current ratio is a more reliable indicator of a company's ability to pay its current liabilities than is working capital, and it is much easier to compare across companies. To illustrate, assume that as of December 31, 2012, the working capital of a competitor is much greater than $340,000, but its current ratio is only 1.3. Considering these facts alone, Lincoln Company, with its current ratio of 2.6, is in a more favorable position to obtain short-term credit than the competitor, which has the greater amount of working capital.

excel SUCCESS The ratios illustrated in the chapter can all be computed using spreadsheet software. To simplify, we will illustrate only the use of spreadsheet software for the current ratio and rate earned on total assets in this chapter. At the end of the chapter a comprehensive spreadsheet illustration is provided to show the calculations of all of the ratios using spreadsheet software. The working capital and current ratio can be computed using spreadsheet software as follows:



	A	B	C
1	*Inputs:*		
2		2012	2011
3	Current assets	$ 550,000	$ 533,000
4	Current liabilities	210,000	243,000
5			
6	*Outputs*		
7	Working capital	=B3-B4	=C3-C4
8			
9	Current ratio	=B3/B4	=C3/C4
10			

The two calculations in column B can be copied simultaneously (B7:B9 to C7:C9) rather than copying one at a time.

The inputs could be the financial statements or a section of the financial statements. Here we illustrate just two separate lines, current assets and current liabilities. The outputs are two analyses, working capital and the current ratio.

a. Enter the formula for working capital in B7, =B3-B4, then copy to C7.

b. Enter the formula for the current ratio in B9, =B3/B4, then copy to C9.
Format this ratio with one decimal place.

TryIt Go to the hands-on ***Excel Tutor*** for this example!
(Note: The example here and throughout this chapter are contained in a **single** tutorial.)

Quick Ratio One limitation of working capital and the current ratio is that they do not consider the types of current assets a company has and how easily they can be turned in to cash. Because of this, two companies may have the same working capital and current ratios, but differ significantly in their ability to pay their current liabilities.

To illustrate, the current assets and liabilities for Lincoln Company and Jefferson Corporation as of December 31, 2012, are as follows:

	Lincoln Company	Jefferson Corporation
Current assets:		
Cash	$ 90,500	$ 45,500
Temporary investments	75,000	25,000
Accounts receivable (net)	115,000	90,000
Inventories	264,000	380,000
Prepaid expenses	5,500	9,500
Total current assets	$550,000	$550,000
Total current assets	$550,000	$550,000
Less current liabilities	210,000	210,000
Working capital	$340,000	$340,000
Current ratio ($550,000/$210,000)	2.6	2.6

Lincoln and Jefferson both have a working capital of $340,000 and current ratios of 2.6. Jefferson, however, has more of its current assets in inventories. These inventories must be sold and the receivables collected before all the current liabilities can be paid. This takes time. In addition, if the market for its product declines, Jefferson may have difficulty selling its inventory. This, in turn, could impair its ability to pay its current liabilities.

In contrast, Lincoln's current assets contain more cash, temporary investments, and accounts receivable, which can easily be converted to cash. Thus, Lincoln is in a stronger current position than Jefferson to pay its current liabilities.

A ratio that measures the "instant" debt-paying ability of a company is the **quick ratio**, sometimes called the *acid-test ratio*. The quick ratio is computed as follows:

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

Quick assets are cash and other current assets that can be easily converted to cash. Quick assets normally include cash, temporary investments, and receivables but exclude inventories and prepaid assets.

To illustrate, the quick ratio for Lincoln Company is computed below.

	2012	2011
Quick assets:		
Cash	$ 90,500	$ 64,700
Temporary investments	75,000	60,000
Accounts receivable (net)	115,000	120,000
Total quick assets	$280,500	$244,700
Current liabilities	$210,000	$243,000
Quick ratio	1.3 ($280,500 ÷ $210,000)	1.0 ($244,700 ÷ $243,000)

Example Exercise 17-3 Current Position Analysis

OBJ. 2

The following items are reported on a company's balance sheet:

Cash	$300,000
Temporary investments	100,000
Accounts receivable (net)	200,000
Inventory	200,000
Accounts payable	400,000

Determine (a) the current ratio and (b) the quick ratio.

Follow My Example 17-3

a. Current Ratio = Current Assets ÷ Current Liabilities
Current Ratio = ($300,000 + $100,000 + $200,000 + $200,000) ÷ $400,000
Current Ratio = 2.0

b. Quick Ratio = Quick Assets ÷ Current Liabilities
Quick Ratio = ($300,000 + $100,000 + $200,000) ÷ $400,000
Quick Ratio = 1.5

Practice Exercises: **PE 17-3A, PE 17-3B**

Accounts Receivable Analysis

A company's ability to collect its accounts receivable is called **accounts receivable analysis**. It includes the computation and analysis of the following:

1. Accounts receivable turnover
2. Number of days' sales in receivables

Collecting accounts receivable as quickly as possible improves a company's solvency. In addition, the cash collected from receivables may be used to improve or expand operations. Quick collection of receivables also reduces the risk of uncollectible accounts.

Accounts Receivable Turnover The **accounts receivable turnover** is computed as follows:

$$\text{Accounts Receivable Turnover} = \frac{\text{Net Sales}^2}{\text{Average Accounts Receivable}}$$

To illustrate, the accounts receivable turnover for Lincoln Company for 2012 and 2011 is computed below. Lincoln's accounts receivable balance at the beginning of 2011 is $140,000.

	2012	2011
Net sales	$1,498,000	$1,200,000
Accounts receivable (net):		
Beginning of year	$ 120,000	$ 140,000
End of year	115,000	120,000
Total	$ 235,000	$ 260,000
Average accounts receivable	$117,500 ($235,000 ÷ 2)	$130,000 ($260,000 ÷ 2)
Accounts receivable turnover	12.7 ($1,498,000 ÷ $117,500)	9.2 ($1,200,000 ÷ $130,000)

The increase in Lincoln's accounts receivable turnover from 9.2 to 12.7 indicates that the collection of receivables has improved during 2012. This may be due to a change in how credit is granted, collection practices, or both.

For Lincoln Company, the average accounts receivable was computed using the accounts receivable balance at the beginning and the end of the year. When sales

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[2] If known, *credit* sales should be used in the numerator. Because credit sales are not normally known by external users, we use net sales in the numerator.

are seasonal and, thus, vary throughout the year, monthly balances of receivables are often used. Also, if sales on account include notes receivable as well as accounts receivable, notes and accounts receivables are normally combined for analysis.

Number of Days' Sales in Receivables The **number of days' sales in receivables** is computed as follows:

$$\text{Number of Days' Sales in Receivables} = \frac{\text{Average Accounts Receivable}}{\text{Average Daily Sales}}$$

where

$$\text{Average Daily Sales} = \frac{\text{Net Sales}}{\text{365 days}}$$

To illustrate, the number of days' sales in receivables for Lincoln Company is computed below.

	2012	2011
Average accounts receivable	\$117,500 (\$235,000 ÷ 2)	\$130,000 (\$260,000 ÷ 2)
Average daily sales	\$4,104 (\$1,498,000 ÷ 365)	\$3,288 (\$1,200,000 ÷ 365)
Number of days' sales in receivables	28.6 (\$117,500 ÷ \$4,104)	39.5 (\$130,000 ÷ \$3,288)

The number of days' sales in receivables is an estimate of the time (in days) that the accounts receivable have been outstanding. The number of days' sales in receivables is often compared with a company's credit terms to evaluate the efficiency of the collection of receivables.

To illustrate, if Lincoln's credit terms are 2/10, n/30, then Lincoln was very *inefficient* in collecting receivables in 2011. In other words, receivables should have been collected in 30 days or less, but were being collected in 39.5 days. Although collections improved during 2012 to 28.6 days, there is probably still room for improvement. On the other hand, if Lincoln's credit terms are n/45, then there is probably little room for improving collections.

Example Exercise 17-4 Accounts Receivable Analysis

OBJ. 2

A company reports the following:

Net sales	\$960,000
Average accounts receivable (net)	48,000

Determine (a) the accounts receivable turnover and (b) the number of days' sales in receivables. Round to one decimal place.

Follow My Example 17-4

a. Accounts Receivable Turnover = Net Sales ÷ Average Accounts Receivable
Accounts Receivable Turnover = \$960,000 ÷ \$48,000
Accounts Receivable Turnover = 20.0

b. Number of Days' Sales in Receivables = Average Accounts Receivable ÷ Average Daily Sales
Number of Days' Sales in Receivables = \$48,000 ÷ (\$960,000/365) = \$48,000 ÷ \$2,630
Number of Days' Sales in Receivables = 18.3 days

Practice Exercises: **PE 17-4A, PE 17-4B**

Inventory Analysis

A company's ability to manage its inventory effectively is evaluated using **inventory analysis**. It includes the computation and analysis of the following:

1. Inventory turnover
2. Number of days' sales in inventory

Excess inventory decreases solvency by tying up funds (cash) in inventory. In addition, excess inventory increases insurance expense, property taxes, storage costs, and other related expenses. These expenses further reduce funds that could be used elsewhere to improve or expand operations.

Excess inventory also increases the risk of losses because of price declines or obsolescence of the inventory. On the other hand, a company should keep enough inventory in stock so that it doesn't lose sales because of lack of inventory.

Inventory Turnover

The **inventory turnover** is computed as follows:

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

To illustrate, the inventory turnover for Lincoln Company for 2012 and 2011 is computed below. Lincoln's inventory balance at the beginning of 2011 is $311,000.

	2012	2011
Cost of goods sold	$1,043,000	$820,000
Inventories:		
Beginning of year	$ 283,000	$311,000
End of year	264,000	283,000
Total	$ 547,000	$594,000
Average inventory	$273,500 ($547,000 ÷ 2)	$297,000 ($594,000 ÷ 2)
Inventory turnover	3.8 ($1,043,000 ÷ $273,500)	2.8 ($820,000 ÷ $297,000)

The increase in Lincoln's inventory turnover from 2.8 to 3.8 indicates that the management of inventory has improved in 2012. The inventory turnover improved because of an increase in the cost of goods sold, which indicates more sales, and a decrease in the average inventories.

What is considered a good inventory turnover varies by type of inventory, companies, and industries. For example, grocery stores have a higher inventory turnover than jewelers or furniture stores. Likewise, within a grocery store, perishable foods have a higher turnover than the soaps and cleansers.

Number of Days' Sales in Inventory

The **number of days' sales in inventory** is computed as follows:

$$\text{Number of Days' Sales in Inventory} = \frac{\text{Average Inventory}}{\text{Average Daily Cost of Goods Sold}}$$

where

$$\text{Average Daily Cost of Goods Sold} = \frac{\text{Cost of Goods Sold}}{\text{365 days}}$$

To illustrate, the number of days' sales in inventory for Lincoln Company is computed below.

	2012	2011
Average inventory	$273,500 ($547,000 ÷ 2)	$297,000 ($594,000 ÷ 2)
Average daily cost of goods sold	$2,858 ($1,043,000 ÷ 365)	$2,247 ($820,000 ÷ 365)
Number of days' sales in inventory	95.7 ($273,500 ÷ $2,858)	132.2 ($297,000 ÷ $2,247)

The number of days' sales in inventory is a rough measure of the length of time it takes to purchase, sell, and replace the inventory. Lincoln's number of days' sales in inventory improved from 132.2 days to 95.7 days during 2012. This is a major improvement in managing inventory.

Example Exercise 17-5 Inventory Analysis

OBJ. 2

A company reports the following:

Cost of goods sold	$560,000
Average inventory	112,000

Determine (a) the inventory turnover and (b) the number of days' sales in inventory. Round to one decimal place.

Follow My Example 17-5

a. Inventory Turnover = Cost of Goods Sold ÷ Average Inventory
Inventory Turnover = $560,000 ÷ $112,000
Inventory Turnover = 5.0

b. Number of Days' Sales in Inventory = Average Inventory ÷ Average Daily Cost of Goods Sold
Number of Days' Sales in Inventory = $112,000 ÷ ($560,000/365) = $112,000 ÷ $1,534
Number of Days' Sales in Inventory = 73.0 days

Practice Exercises: **PE 17-5A, PE 17-5B**

Ratio of Fixed Assets to Long-Term Liabilities

The **ratio of fixed assets to long-term liabilities** provides a measure of whether note-holders or bondholders will be paid. Since fixed assets are often pledged as security for long-term notes and bonds, it is computed as follows:

$$\text{Ratio of Fixed Assets to Long-Term Liabilities} = \frac{\text{Fixed Assets (net)}}{\text{Long-Term Liabilities}}$$

To illustrate, the ratio of fixed assets to long-term liabilities for Lincoln Company is computed below.

	2012	2011
Fixed assets (net)	$444,500	$470,000
Long-term liabilities	$100,000	$200,000
Ratio of fixed assets to long-term liabilities	4.4 ($444,500 ÷ $100,000)	2.4 ($470,000 ÷ $200,000)

During 2012, Lincoln's ratio of fixed assets to long-term liabilities increased from 2.4 to 4.4. This increase was due primarily to Lincoln paying off one-half of its long-term liabilities in 2012.

Ratio of Liabilities to Stockholders' Equity

The **ratio of liabilities to stockholders' equity** measures how much of the company is financed by debt and equity. It is computed as follows:

$$\text{Ratio of Liabilities to Stockholders' Equity} = \frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}}$$

To illustrate, the ratio of liabilities to stockholders' equity for Lincoln Company is computed below.

	2012	2011
Total liabilities	$310,000	$443,000
Total stockholders' equity	$829,500	$787,500
Ratio of liabilities to stockholders' equity	0.4 ($310,000 ÷ $829,500)	0.6 ($443,000 ÷ $787,500)

Lincoln's ratio of liabilities to stockholders' equity decreased from 0.6 to 0.4 during 2012. This is an improvement and indicates that Lincoln's creditors have an adequate margin of safety.

Example Exercise 17-6 Long-Term Solvency Analysis

OBJ. 2

The following information was taken from Acme Company's balance sheet:

Fixed assets (net)	$1,400,000
Long-term liabilities	400,000
Total liabilities	560,000
Total stockholders' equity	1,400,000

Determine the company's (a) ratio of fixed assets to long-term liabilities and (b) ratio of liabilities to total stockholders' equity.

Follow My Example 17-6

a. Ratio of Fixed Assets to Long-Term Liabilities = Fixed Assets ÷ Long-Term Liabilities
Ratio of Fixed Assets to Long-Term Liabilities = $1,400,000 ÷ $400,000
Ratio of Fixed Assets to Long-Term Liabilities = 3.5

b. Ratio of Liabilities to Total Stockholders' Equity = Total Liabilities ÷ Total Stockholders' Equity
Ratio of Liabilities to Total Stockholders' Equity = $560,000 ÷ $1,400,000
Ratio of Liabilities to Total Stockholders' Equity = 0.4

Practice Exercises: **PE 17-6A, PE 17-6B**

Number of Times Interest Charges Earned

The **number of times interest charges are earned**, sometimes called the *fixed charge coverage ratio*, measures the risk that interest payments will not be made if earnings decrease. It is computed as follows:

$$\text{Number of Times Interest Charges Are Earned} = \frac{\text{Income Before Income Tax} + \text{Interest Expense}}{\text{Interest Expense}}$$

Interest expense is paid before income taxes. In other words, interest expense is deducted in determining taxable income and, thus, income tax. For this reason, income *before taxes* is used in computing the number of times interest charges are earned.

The *higher* the ratio the more likely interest payments will be paid if earnings decrease. To illustrate, the number of times interest charges are earned for Lincoln Company is computed below.

	2012	2011
Income before income tax	$162,500	$134,600
Add interest expense	6,000	12,000
Amount available to pay interest	$168,500	$146,600
Number of times interest charges earned	28.1 ($168,500 ÷ $6,000)	12.2 ($146,600 ÷ $12,000)

The number of times interest charges are earned improved from 12.2 to 28.1 during 2012. This indicates that Lincoln Company has sufficient earnings to pay interest expense.

The number of times interest charges are earned can be adapted for use with dividends on preferred stock. In this case, the *number of times preferred dividends are earned* is computed as follows:

$$\text{Number of Times Preferred Dividends Are Earned} = \frac{\text{Net Income}}{\text{Preferred Dividends}}$$

Since dividends are paid after taxes, net income is used in computing the number of times preferred dividends are earned. The *higher* the ratio, the more likely preferred dividends payments will be paid if earnings decrease.

Example Exercise 17-7 Times Interest Charges Are Earned

OBJ. 2

A company reports the following:

Income before income tax	$250,000
Interest expense	100,000

Determine the number of times interest charges are earned.

Follow My Example 17-7

Number of Times Interest Charges Are Earned = (Income Before Income Tax + Interest Expense) ÷ Interest Expense
Number of Times Interest Charges Are Earned = ($250,000 + $100,000) ÷ $100,000
Number of Times Interest Charges Are Earned = 3.5

Practice Exercises: **PE 17-7A, PE 17-7B**

Profitability Analysis

OBJ. 3 Use financial statement analysis to assess the profitability of a business.

Profitability analysis focuses on the ability of a company to earn profits. This ability is reflected in the company's operating results, as reported in its income statement. The ability to earn profits also depends on the assets the company has available for use in its operations, as reported in its balance sheet. Thus, income statement and balance sheet relationships are often used in evaluating profitability.

Common profitability analyses include the following:

1. Ratio of net sales to assets
2. Rate earned on total assets
3. Rate earned on stockholders' equity
4. Rate earned on common stockholders' equity
5. Earnings per share on common stock
6. Price-earnings ratio
7. Dividends per share
8. Dividend yield

Note: **Profitability analysis focuses on the relationship between operating results and the resources available to a business.**

Ratio of Net Sales to Assets

The **ratio of net sales to assets** measures how effectively a company uses its assets. It is computed as follows:

$$\text{Ratio of Net Sales to Assets} = \frac{\text{Net Sales}}{\text{Average Total Assets (excluding long-term investments)}}$$

As shown above, any long-term investments are excluded in computing the ratio of net sales to assets. This is because long-term investments are unrelated to normal operations and net sales.

To illustrate, the ratio of net sales to assets for Lincoln Company is computed below. Total assets (excluding long-term investments) are $1,010,000 at the beginning of 2011.

	2012	2011
Net sales	$1,498,000	$1,200,000
Total assets (excluding long-term investments):		
Beginning of year	$1,053,000*	$1,010,000
End of year	1,044,500**	1,053,000***
Total	$2,097,500	$2,063,000
Average total assets	$1,048,750 ($2,097,500 ÷ 2)	$1,031,500 ($2,063,000 ÷ 2)
Ratio of net sales to assets	1.4 ($1,498,000 ÷ $1,048,750)	1.2 ($1,200,000 ÷ $1,031,500)

*($1,230,500 – $177,500)
**($1,139,500 – $95,000)
***($1,230,500 – $177,500)

For Lincoln Company, the average total assets was computed using total assets (excluding long-term investments) at the beginning and the end of the year. The average total assets could also be based on monthly or quarterly averages.

The ratio of net sales to assets indicates that Lincoln's use of its operating assets has improved in 2012. This was primarily due to the increase in net sales in 2012.

Example Exercise 17-8 Net Sales to Assets

OBJ. 3

A company reports the following:

Net sales	$2,250,000
Average total assets	1,500,000

Determine the ratio of net sales to assets.

Follow My Example 17-8

Ratio of Net Sales to Assets = Net Sales ÷ Average Total Assets
Ratio of Net Sales to Assets = $2,250,000 ÷ $1,500,000
Ratio of Net Sales to Assets = 1.5

Practice Exercises: **PE 17-8A, PE 17-8B**

Rate Earned on Total Assets

The **rate earned on total assets** measures the profitability of total assets, without considering how the assets are financed. In other words, this rate is not affected by the portion of assets financed by creditors or stockholders. It is computed as follows:

$$\text{Rate Earned on Total Assets} = \frac{\text{Net Income} + \text{Interest Expense}}{\text{Average Total Assets}}$$

The rate earned on total assets is computed by adding interest expense to net income. By adding interest expense to net income, the effect of whether the assets are financed by creditors (debt) or stockholders (equity) is eliminated. Because net income includes any income earned from long-term investments, the average total assets includes long-term investments as well as the net operating assets.

To illustrate, the rate earned on total assets by Lincoln Company is computed below. Total assets are $1,187,500 at the beginning of 2011.

	2012	2011
Net income	$ 91,000	$ 76,500
Plus interest expense	6,000	12,000
Total	$ 97,000	$ 88,500
Total assets:		
Beginning of year	$1,230,500	$1,187,500
End of year	1,139,500	1,230,500
Total	$2,370,000	$2,418,000
Average total assets	$1,185,000 ($2,370,000 ÷ 2)	$1,209,000 ($2,418,000 ÷ 2)
Rate earned on total assets	8.2% ($97,000 ÷ $1,185,000)	7.3% ($88,500 ÷ $1,209,000)

The rate earned on total assets improved from 7.3% to 8.2% during 2012.

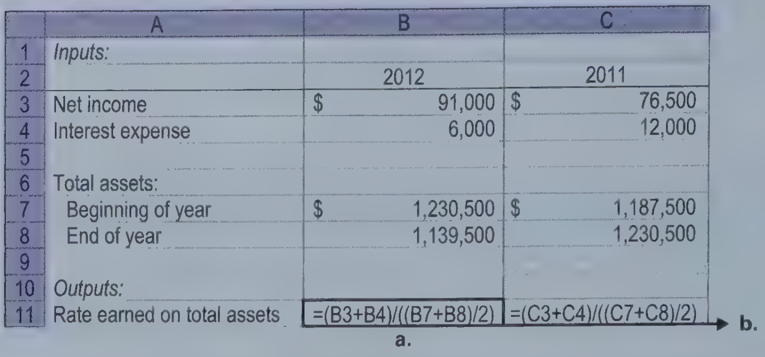
The *rate earned on operating assets* is sometimes computed when there are large amounts of nonoperating income and expense. It is computed as follows:

$$\text{Rate Earned on Operating Assets} = \frac{\text{Income from Operations}}{\text{Average Operating Assets}}$$

Since Lincoln Company does not have a significant amount of nonoperating income and expense, the rate earned on operating assets is not illustrated.

excel SUCCESS

The rate earned on total assets can be computed using spreadsheet software as follows:



	A	B	C
1	*Inputs:*		
2		2012	2011
3	Net income	$ 91,000	$ 76,500
4	Interest expense	6,000	12,000
5			
6	Total assets:		
7	Beginning of year	$ 1,230,500	$ 1,187,500
8	End of year	1,139,500	1,230,500
9			
10	*Outputs:*		
11	Rate earned on total assets	=(B3+B4)/((B7+B8)/2)	=(C3+C4)/((C7+C8)/2)

The inputs could be the financial statements or a section of the financial statements. Here we illustrate only the data needed to compute the ratio. The output is the rate earned on total assets for the two years.

a. Enter the formula for the rate earned on total assets in B11 as follows:

=(B3+B4)/((B7+B8)/2)

Numerator, using parentheses to force calculation order.

Denominator, using parentheses to force calculation order.

b. Copy the formula from B11 to C11.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!
(Note: The example here and throughout this chapter are contained in a **single** tutorial.)

Try*It* This Excel Success example shows the use of parentheses.
Go to the ***Excel Tutor*** titled **Using Parentheses** for additional help!

Example Exercise 17-9 Rate Earned on Total Assets

3

A company reports the following income statement and balance sheet information for the current year:

Net income	$ 125,000
Interest expense	25,000
Average total assets	2,000,000

Determine the rate earned on total assets.

Follow My Example 17-9

Rate Earned on Total Assets = (Net Income + Interest Expense) ÷ Average Total Assets
Rate Earned on Total Assets = ($125,000 + $25,000) ÷ $2,000,000
Rate Earned on Total Assets = $150,000 ÷ $2,000,000
Rate Earned on Total Assets = 7.5%

Practice Exercises: **PE 17-9A, PE 17-9B**

Rate Earned on Stockholders' Equity

The **rate earned on stockholders' equity** measures the rate of income earned on the amount invested by the stockholders. It is computed as follows:

$$\text{Rate Earned on Stockholders' Equity} = \frac{\text{Net Income}}{\text{Average Total Stockholders' Equity}}$$

To illustrate, the rate earned on stockholders' equity for Lincoln Company is computed below. Total stockholders' equity is $750,000 at the beginning of 2011.

	2012	2011
Net income	$ 91,000	$ 76,500
Stockholders' equity:		
Beginning of year	$ 787,500	$ 750,000
End of year	829,500	787,500
Total	$1,617,000	$1,537,500
Average stockholders' equity	$808,500 ($1,617,000 ÷ 2)	$768,750 ($1,537,500 ÷ 2)
Rate earned on stockholders' equity	11.3% ($91,000 ÷ $808,500)	10.0% ($76,500 ÷ $768,750)

The rate earned on stockholders' equity improved from 10.0% to 11.3% during 2012.

Leverage involves using debt to increase the return on an investment. The rate earned on stockholders' equity is normally higher than the rate earned on total assets. This is because of the effect of leverage.

For Lincoln Company, the effect of leverage for 2012 is 3.1% and for 2011 is 2.7% computed as follows:

	2012	2011
Rate earned on stockholders' equity	11.3%	10.0%
Less rate earned on total assets	8.2	7.3
Effect of leverage	3.1%	2.7%

Exhibit 8 shows the 2012 and 2011 effects of leverage for Lincoln Company.

Rate Earned on Common Stockholders' Equity

The **rate earned on common stockholders' equity** measures the rate of profits earned on the amount invested by the common stockholders. It is computed as follows:

$$\text{Rate Earned on Common Stockholders' Equity} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Common Stockholders' Equity}}$$

Because preferred stockholders rank ahead of the common stockholders in their claim on earnings, any preferred dividends are subtracted from net income in computing the rate earned on common stockholders' equity.

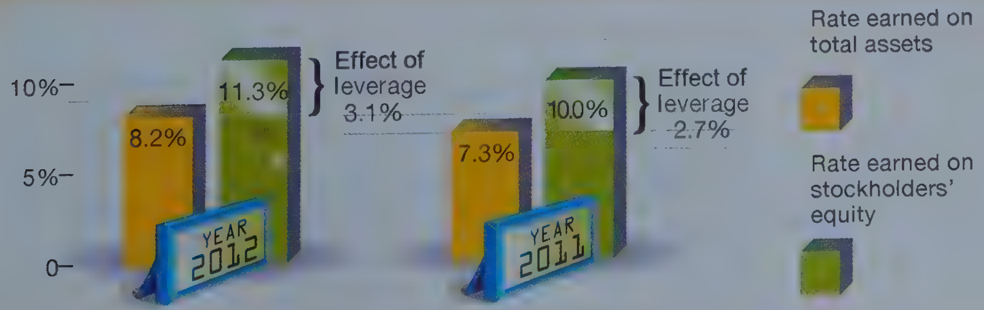
Lincoln Company had $150,000 of 6% preferred stock outstanding on December 31, 2012 and 2011. Thus, preferred dividends of $9,000 ($150,000 × 6%) are deducted from net income. Lincoln's common stockholders' equity is determined as follows:

	December 31		
	2012	2011	2010
Common stock, $10 par	$500,000	$500,000	$500,000
Retained earnings	179,500	137,500	100,000
Common stockholders' equity	$679,500	$637,500	$600,000

The retained earnings on December 31, 2010, of $100,000 is the same as the retained earnings on January 1, 2011, as shown in Lincoln's retained earnings statement in Exhibit 4.

EXHIBIT 8

Effect of Leverage



Using this information, the rate earned on common stockholders' equity for Lincoln Company is computed below.

	2012	2011
Net income	$ 91,000	$ 76,500
Less preferred dividends	9,000	9,000
Total	$ 82,000	$ 67,500
Common stockholders' equity:		
Beginning of year	$ 637,500	$ 600,000
End of year	679,500*	637,500**
Total	$1,317,000	$1,237,500
Average common stockholders' equity	$ 658,500 ($1,317,000 ÷ 2)	$618,750 ($1,237,500 ÷ 2)
Rate earned on common stockholders' equity	12.5% ($82,000 ÷ $658,500)	10.9% ($67,500 ÷ $618,750)

*($829,500 – $150,000)
**($787,500 – $150,000)

Lincoln Company's rate earned on common stockholders' equity improved from 10.9% to 12.5% in 2012. This rate differs from the rates earned by Lincoln Company on total assets and stockholders' equity as shown below.

	2012	2011
Rate earned on total assets	8.2%	7.3%
Rate earned on stockholders' equity	11.3%	10.0%
Rate earned on common stockholders' equity	12.5%	10.9%

These rates differ because of leverage, as discussed in the preceding section.

Earnings per Share on Common Stock

Earnings per share (EPS) on common stock measures the share of profits that are earned by a share of common stock. Earnings per share must be reported in the income statement. As a result, earnings per share (EPS) is often reported in the financial press. It is computed as follows:

$$\text{Earnings per Share (EPS) on Common Stock} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Shares of Common Stock Outstanding}}$$

Example Exercise 17-10 Common Stockholders' Profitability Analysis

OBJ 3

A company reports the following:

Net income	$ 125,000
Preferred dividends	5,000
Average stockholders' equity	1,000,000
Average common stockholders' equity	800,000

Determine (a) the rate earned on stockholders' equity and (b) the rate earned on common stockholders' equity.

Follow My Example 17-10

Rate Earned on Stockholders' Equity = Net Income ÷ Average Stockholders' Equity
Rate Earned on Stockholders' Equity = $125,000 ÷ $1,000,000
Rate Earned on Stockholders' Equity = 12.5%

Rate Earned on Common Stockholders' Equity = (Net Income – Preferred Dividends) ÷ Average Common Stockholders' Equity
Rate Earned on Common Stockholders' Equity = ($125,000 – $5,000) ÷ $800,000
Rate Earned on Common Stockholders' Equity = 15%

Practice Exercises: **PE 17-10A, PE 17-10B**

When preferred and common stock are outstanding, preferred dividends are subtracted from net income to determine the income related to the common shares.

To illustrate, the earnings per share (EPS) of common stock for Lincoln Company is computed below.

	2012	2011
Net income	$91,000	$76,500
Preferred dividends	9,000	9,000
Total	$82,000	$67,500
Shares of common stock outstanding	50,000	50,000
Earnings per share on common stock	$1.64 ($82,000 ÷ 50,000)	$1.35 ($67,500 ÷ 50,000)

Lincoln Company had $150,000 of 6% preferred stock outstanding on December 31, 2012 and 2011. Thus, preferred dividends of $9,000 ($150,000 × 6%) are deducted from net income in computing earnings per share on common stock.

Lincoln did not issue any additional shares of common stock in 2012. If Lincoln had issued additional shares in 2012, a weighted average of common shares outstanding during the year would have been used.

Lincoln's earnings per share (EPS) on common stock improved from $1.35 to $1.64 during 2012.

Lincoln Company has a simple capital structure with only common stock and preferred stock outstanding. Many corporations, however, have complex capital structures with various types of equity securities outstanding, such as convertible preferred stock, stock options, and stock warrants. In such cases, the possible effects of such securities on the shares of common stock outstanding are considered in reporting earnings per share. These possible effects are reported separately as *earnings per common share assuming dilution* or *diluted earnings per share*. This topic is described and illustrated in advanced accounting courses and textbooks.

Price-Earnings Ratio

The **price-earnings (P/E) ratio** on common stock measures a company's future earnings prospects. It is often quoted in the financial press and is computed as follows:

$$\text{Price-Earnings (P/ E) Ratio} = \frac{\text{Market Price per Share of Common Stock}}{\text{Earnings per Share on Common Stock}}$$

To illustrate, the price-earnings (P/E) ratio for Lincoln Company is computed below.

	2012	2011
Market price per share of common stock	$41.00	$27.00
Earnings per share on common stock	$1.64	$1.35
Price-earnings ratio on common stock	25 ($41 ÷ $1.64)	20 ($27 ÷ $1.35)

The price-earnings ratio improved from 20 to 25 during 2012. In other words, a share of common stock of Lincoln Company was selling for 20 times earnings per share at the end of 2011. At the end of 2012, the common stock was selling for 25 times earnings per share. This indicates that the market expects Lincoln to experience favorable earnings in the future.

Dividends per Share

Dividends per share measures the extent to which earnings are being distributed to common shareholders. It is computed as follows:

$$\text{Dividends per Share} = \frac{\text{Dividends on Common Stock}}{\text{Shares of Common Stock Outstanding}}$$

Example Exercise 17-11 Earnings per Share and Price-Earnings Ratio

A company reports the following:

Net income	$250,000
Preferred dividends	$15,000
Shares of common stock outstanding	20,000
Market price per share of common stock	$35.00

a. Determine the company's earnings per share on common stock.
b. Determine the company's price-earnings ratio. Round to one decimal place.

Follow My Example 17-11

a. Earnings per Share on Common Stock = (Net Income – Preferred Dividends) ÷ Shares of Common Stock Outstanding
Earnings per Share = ($250,000 – $15,000) ÷ 20,000
Earnings per Share = $11.75

b. Price-Earnings Ratio = Market Price per Share of Common Stock ÷ Earnings per Share on Common Stock
Price-Earnings Ratio = $35.00 ÷ $11.75
Price-Earnings Ratio = 3.0

Practice Exercises: **PE 17-11A, PE 17-11B**

To illustrate, the dividends per share for Lincoln Company are computed below.

	2012	2011
Dividends on common stock	$40,000	$30,000
Shares of common stock outstanding	50,000	50,000
Dividends per share of common stock	$0.80 ($40,000 ÷ 50,000)	$0.60 ($30,000 ÷ 50,000)

The dividends per share of common stock increased from $0.60 to $0.80 during 2012.

Dividends per share are often reported with earnings per share. Comparing the two per-share amounts indicates the extent to which earnings are being retained for use in operations. To illustrate, the dividends and earnings per share for Lincoln Company are shown in Exhibit 9.

Dividend Yield

The **dividend yield** on common stock measures the rate of return to common stockholders from cash dividends. It is of special interest to investors whose objective is to earn revenue (dividends) from their investment. It is computed as follows:

$$\text{Dividend Yield} = \frac{\text{Dividends per Share of Common Stock}}{\text{Market Price per Share of Common Stock}}$$

EXHIBIT 9

Dividends and Earnings per Share of Common Stock

To illustrate, the dividend yield for Lincoln Company is computed below.

	2012	2011
Dividends per share of common stock	$0.80	$0.60
Market price per share of common stock	$41.00	$27.00
Dividend yield on common stock	2.0% ($0.80 ÷ $41)	2.2% ($0.60 ÷ $27)

The dividend yield declined slightly from 2.2% to 2.0% in 2012. This decline was primarily due to the increase in the market price of Lincoln's common stock.

The dividends per share, dividend yield, and P/E ratio of a common stock are normally quoted on the daily listing of stock prices in *The Wall Street Journal* and on Yahoo!'s finance Web site.

Summary of Analytical Measures

Exhibit 10 shows a summary of the solvency and profitability measures discussed in this chapter. The type of industry and the company's operations usually affect which measures are used. In many cases, additional measures are used for a specific industry. For example, airlines use *revenue per passenger mile* and *cost per available seat* as profitability measures. Likewise, hotels use *occupancy rates* as a profitability measure.

The analytical measures shown in Exhibit 10 are a useful starting point for analyzing a company's solvency and profitability. However, they are not a substitute for sound judgment. For example, the general economic and business environment should always be considered in analyzing a company's future prospects. In addition, any trends and interrelationships among the measures should be carefully studied.

Integrity, Objectivity, and Ethics in Business

CHIEF FINANCIAL OFFICER BONUSES

A recent study by compensation experts at Temple University found that chief financial officer salaries are correlated with the complexity of a company's operations, but chief financial officer bonuses are correlated with the company's ability to meet analysts' earnings forecasts. These results suggest that financial bonuses may provide chief financial officers with an incentive to use questionable accounting practices to improve earnings. While the study doesn't conclude that bonuses lead to accounting fraud, it does suggest that bonuses give chief financial officers a reason to find ways to use accounting to increase apparent earnings.

Source: E. Jelesiewicz, "Today's CFO: More Challenge but Higher Compensation," *News Communications* (Temple University, August 2009).

Corporate Annual Reports

4 Describe the contents of corporate annual reports.

Public corporations issue annual reports summarizing their operating activities for the past year and plans for the future. Such annual reports include the financial statements and the accompanying notes. In addition, annual reports normally include the following sections:

- Management discussion and analysis
- Report on internal control
- Report on fairness of the financial statements

IFRS IFRS

See Appendix D for more information

Management Discussion and Analysis

Management's Discussion and Analysis (MD&A) is required in annual reports filed with the Securities and Exchange Commission. It includes management's analysis of current operations and its plans for the future. Typical items included in the MD&A are as follows:

- Management's analysis and explanations of any significant changes between the current and prior years' financial statements.
- Important accounting principles or policies that could affect interpretation of the financial statements, including the effect of changes in accounting principles or the adoption of new accounting principles.

EXHIBIT 10 **Summary of Analytical Measures**

Solvency measures:	**Method of Computation**	**Use**
Working Capital	Current Assets – Current Liabilities	To indicate the ability to meet currently maturing obligations
Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	
Quick Ratio	$\frac{\text{Quick Assets}}{\text{Current Liabilities}}$	To indicate instant debt-paying ability
Accounts Receivable Turnover	$\frac{\text{Net Sales}}{\text{Average Accounts Receivable}}$	To assess the efficiency in collecting receivables and in the management of credit
Numbers of Days' Sales in Receivables	$\frac{\text{Average Accounts Receivable}}{\text{Average Daily Sales}}$	
Inventory Turnover	$\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$	To assess the efficiency in the management of inventory
Number of Days' Sales in Inventory	$\frac{\text{Average Inventory}}{\text{Average Daily Cost of Goods Sold}}$	
Ratio of Fixed Assets to Long-Term Liabilities	$\frac{\text{Fixed Assets (net)}}{\text{Long-Term Liabilities}}$	To indicate the margin of safety to long-term creditors
Ratio of Liabilities to Stockholders' Equity	$\frac{\text{Total Liabilities}}{\text{Total Stockholders' Equity}}$	To indicate the margin of safety to creditors
Number of Times Interest Charges Are Earned	$\frac{\text{Income Before Income Tax + Interest Expense}}{\text{Interest Expense}}$	To assess the risk to debtholders in terms of number of times interest charges were earned
Profitability measures:		
Ratio of Net Sales to Assets	$\frac{\text{Net Sales}}{\text{Average Total Assets (excluding long-term investments)}}$	To assess the effectiveness in the use of assets
Rate Earned on Total Assets	$\frac{\text{Net Income + Interest Expense}}{\text{Average Total Assets}}$	To assess the profitability of the assets
Rate Earned on Stockholders' Equity	$\frac{\text{Net Income}}{\text{Average Total Stockholders' Equity}}$	To assess the profitability of the investment by stockholders
Rate Earned on Common Stockholders' Equity	$\frac{\text{Net Income – Preferred Dividends}}{\text{Average Common Stockholders' Equity}}$	To assess the profitability of the investment by common stockholders
Earnings per Share (EPS) on Common Stock	$\frac{\text{Net Income – Preferred Dividends}}{\text{Shares of Common Stock Outstanding}}$	
Price-Earnings (P/E) Ratio	$\frac{\text{Market Price per Share of Common Stock}}{\text{Earnings per Share on Common Stock}}$	To indicate future earnings prospects, based on the relationship between market value of common stock and earnings
Dividends per Share	$\frac{\text{Dividends on Common Stock}}{\text{Shares of Common Stock Outstanding}}$	To indicate the extent to which earnings are being distributed to common stockholders
Dividend Yield	$\frac{\text{Dividends per Share of Common Stock}}{\text{Market Price per Share of Common Stock}}$	To indicate the rate of return to common stockholders in terms of dividends

- Management's assessment of the company's liquidity and the availability of capital to the company.
- Significant risk exposures that might affect the company.
- Any "off-balance-sheet" arrangements such as leases not included directly in the financial statements. Such arrangements are discussed in advanced accounting courses and textbooks.

Report on Internal Control

The Sarbanes-Oxley Act of 2002 requires a report on internal control by management. The report states management's responsibility for establishing and maintaining internal control. In addition, management's assessment of the effectiveness of internal controls over financial reporting is included in the report.

Sarbanes-Oxley also requires a public accounting firm to verify management's conclusions on internal control. Thus, two reports on internal control, one by management and one by a public accounting firm, are included in the annual report. In some situations, these may be combined into a single report on internal control.

Report on Fairness of the Financial Statements

All publicly held corporations are required to have an independent audit (examination) of their financial statements. The Certified Public Accounting (CPA) firm that conducts the audit renders an opinion, called the *Report of Independent Registered Public Accounting Firm*, on the fairness of the statements.

An opinion stating that the financial statements present fairly the financial position, results of operations, and cash flows of the company is said to be an *unqualified opinion*, sometimes called a *clean opinion*. Any report other than an unqualified opinion raises a "red flag" for financial statement users and requires further investigation as to its cause.

The annual report of Nike Inc. is shown in Appendix C. The Nike report includes the financial statements as well as the MD&A Report on Internal Control, and Report on Fairness of the Financial Statements.

Integrity, Objectivity, and Ethics in Business

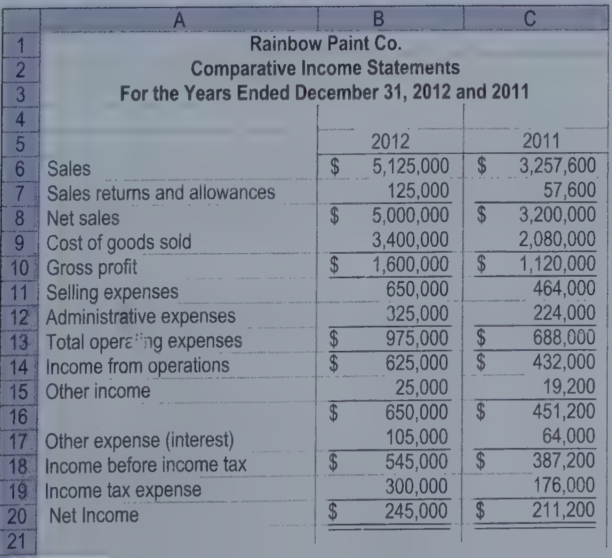
BUY LOW, SELL HIGH

Research analysts work for banks, brokerages, or other financial institutions. Their job is to estimate the value of a company's common stock by reviewing and evaluating the company's business model, strategic plan, and financial performance. Based on this analysis, the analyst develops an estimate of a stock's value, which is called its *fundamental value*. Analysts then advise their clients to "buy" or "sell" a company's stock based on the following guidelines:

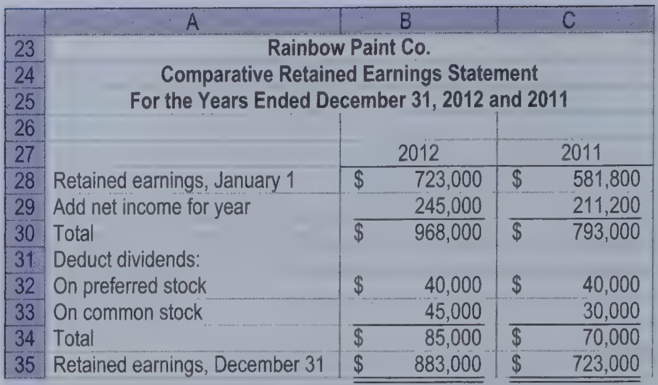
Current market price is greater than fundamental value	Sell
Current market price is lower than fundamental value	Buy

If analysts are doing their job well, their clients will enjoy large returns by buying stocks at low prices and selling them at high prices.

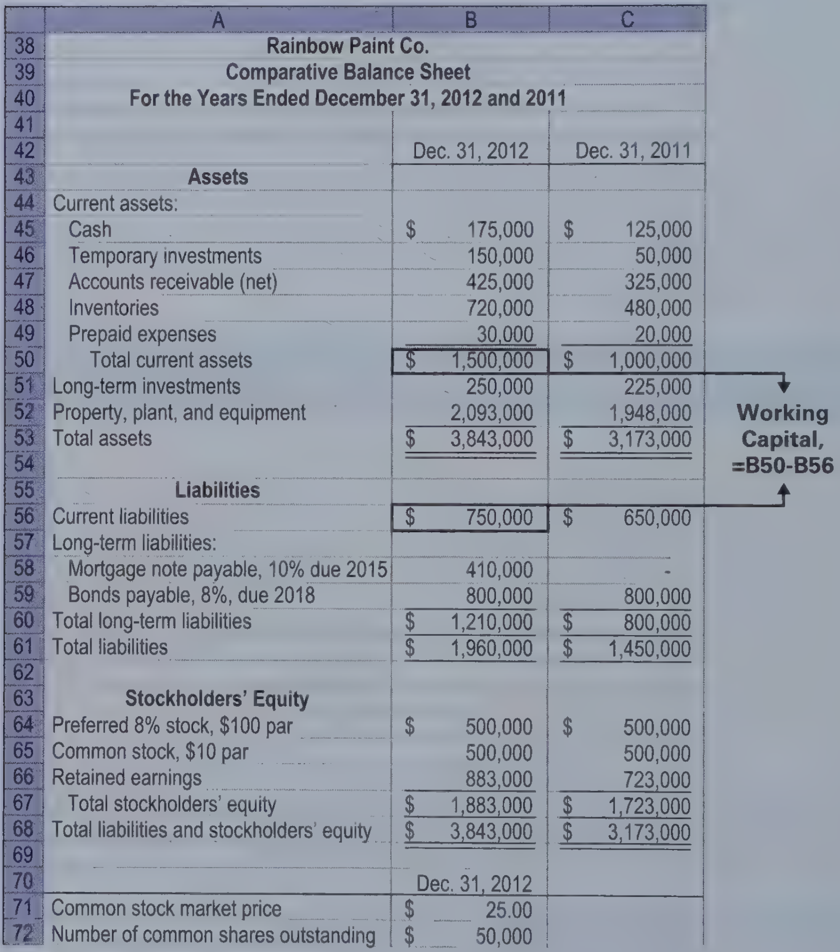
Comprehensive Spreadsheet Illustration:
Rainbow Paint Co.'s comparative financial statement for the years ending December 31, 2012 and 2011, in spreadsheet form are shown below. The market price of Rainbow Paint Co.'s common stock was $30 on December 31, 2012.



	A	B	C
1	Rainbow Paint Co.		
2	Comparative Income Statements		
3	For the Years Ended December 31, 2012 and 2011		
4			
5		2012	2011
6	Sales	$ 5,125,000	$ 3,257,600
7	Sales returns and allowances	125,000	57,600
8	Net sales	$ 5,000,000	$ 3,200,000
9	Cost of goods sold	3,400,000	2,080,000
10	Gross profit	$ 1,600,000	$ 1,120,000
11	Selling expenses	650,000	464,000
12	Administrative expenses	325,000	224,000
13	Total operating expenses	$ 975,000	$ 688,000
14	Income from operations	$ 625,000	$ 432,000
15	Other income	25,000	19,200
16		$ 650,000	$ 451,200
17	Other expense (interest)	105,000	64,000
18	Income before income tax	$ 545,000	$ 387,200
19	Income tax expense	300,000	176,000
20	Net Income	$ 245,000	$ 211,200
21			



	A	B	C
23	**Rainbow Paint Co.**		
24	**Comparative Retained Earnings Statement**		
25	**For the Years Ended December 31, 2012 and 2011**		
26			
27		2012	2011
28	Retained earnings, January 1	$ 723,000	$ 581,800
29	Add net income for year	245,000	211,200
30	Total	$ 968,000	$ 793,000
31	Deduct dividends:		
32	On preferred stock	$ 40,000	$ 40,000
33	On common stock	45,000	30,000
34	Total	$ 85,000	$ 70,000
35	Retained earnings, December 31	$ 883,000	$ 723,000



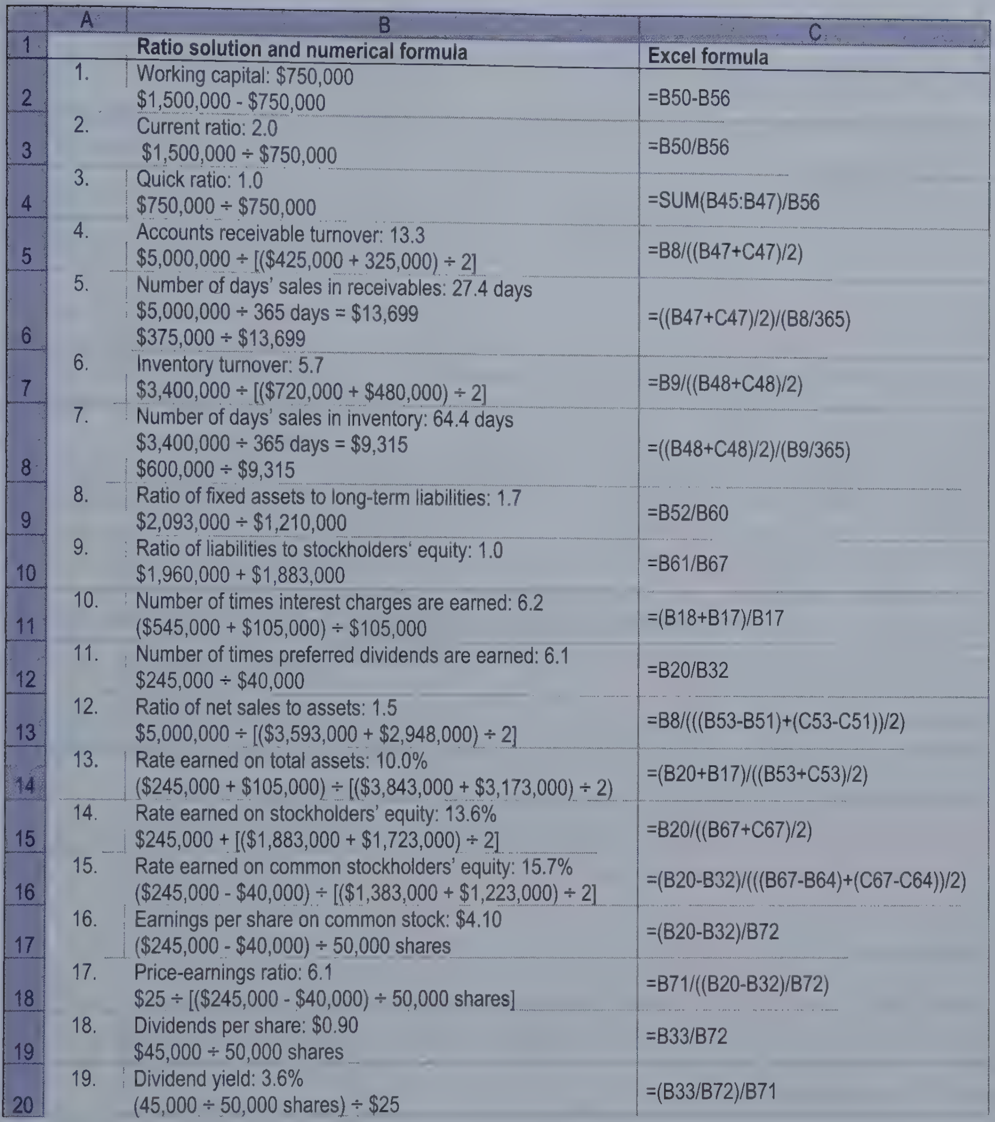
	A	B	C
38	**Rainbow Paint Co.**		
39	**Comparative Balance Sheet**		
40	**For the Years Ended December 31, 2012 and 2011**		
41			
42		Dec. 31, 2012	Dec. 31, 2011
43	**Assets**		
44	Current assets:		
45	Cash	$ 175,000	$ 125,000
46	Temporary investments	150,000	50,000
47	Accounts receivable (net)	425,000	325,000
48	Inventories	720,000	480,000
49	Prepaid expenses	30,000	20,000
50	Total current assets	$ 1,500,000	$ 1,000,000
51	Long-term investments	250,000	225,000
52	Property, plant, and equipment	2,093,000	1,948,000
53	Total assets	$ 3,843,000	$ 3,173,000
54			
55	**Liabilities**		
56	Current liabilities	$ 750,000	$ 650,000
57	Long-term liabilities:		
58	Mortgage note payable, 10% due 2015	410,000	-
59	Bonds payable, 8%, due 2018	800,000	800,000
60	Total long-term liabilities	$ 1,210,000	$ 800,000
61	Total liabilities	$ 1,960,000	$ 1,450,000
62			
63	**Stockholders' Equity**		
64	Preferred 8% stock, $100 par	$ 500,000	$ 500,000
65	Common stock, $10 par	500,000	500,000
66	Retained earnings	883,000	723,000
67	Total stockholders' equity	$ 1,883,000	$ 1,723,000
68	Total liabilities and stockholders' equity	$ 3,843,000	$ 3,173,000
69			
70		Dec. 31, 2012	
71	Common stock market price	$ 25.00	
72	Number of common shares outstanding	$ 50,000	

Working Capital, =B50-B56

Solution

Ratio formulas are illustrated for Rainbow Paint Co. for 2012. The Excel formulas refer to the cell references shown in the financial statements for Rainbow Paint Co. For example, the working capital is computed as the difference between cells B50 and B56, or =B50-B56. This formula is computed based on the balance sheet data. The remaining formulas reference financial statement cells for 2012.

The parentheses in the Excel formulas are required to force proper calculation order. Proper use of parenthesis is important when developing complex Excel formulas.



	A	B	C
1		**Ratio solution and numerical formula**	**Excel formula**
2	1.	Working capital: $750,000 $1,500,000 - $750,000	=B50-B56
3	2.	Current ratio: 2.0 $1,500,000 ÷ $750,000	=B50/B56
4	3.	Quick ratio: 1.0 $750,000 ÷ $750,000	=SUM(B45:B47)/B56
5	4.	Accounts receivable turnover: 13.3 $5,000,000 ÷ [($425,000 + 325,000) ÷ 2]	=B8/((B47+C47)/2)
6	5.	Number of days' sales in receivables: 27.4 days $5,000,000 ÷ 365 days = $13,699 $375,000 ÷ $13,699	=((B47+C47)/2)/(B8/365)
7	6.	Inventory turnover: 5.7 $3,400,000 ÷ [($720,000 + $480,000) ÷ 2]	=B9/((B48+C48)/2)
8	7.	Number of days' sales in inventory: 64.4 days $3,400,000 ÷ 365 days = $9,315 $600,000 ÷ $9,315	=((B48+C48)/2)/(B9/365)
9	8.	Ratio of fixed assets to long-term liabilities: 1.7 $2,093,000 ÷ $1,210,000	=B52/B60
10	9.	Ratio of liabilities to stockholders' equity: 1.0 $1,960,000 + $1,883,000	=B61/B67
11	10.	Number of times interest charges are earned: 6.2 ($545,000 + $105,000) ÷ $105,000	=(B18+B17)/B17
12	11.	Number of times preferred dividends are earned: 6.1 $245,000 ÷ $40,000	=B20/B32
13	12.	Ratio of net sales to assets: 1.5 $5,000,000 ÷ [($3,593,000 + $2,948,000) ÷ 2]	=B8/(((B53-B51)+(C53-C51))/2)
14	13.	Rate earned on total assets: 10.0% ($245,000 + $105,000) ÷ [($3,843,000 + $3,173,000) ÷ 2)	=(B20+B17)/((B53+C53)/2)
15	14.	Rate earned on stockholders' equity: 13.6% $245,000 + [($1,883,000 + $1,723,000) ÷ 2]	=B20/((B67+C67)/2)
16	15.	Rate earned on common stockholders' equity: 15.7% ($245,000 - $40,000) ÷ [($1,383,000 + $1,223,000) ÷ 2]	=(B20-B32)/(((B67-B64)+(C67-C64))/2)
17	16.	Earnings per share on common stock: $4.10 ($245,000 - $40,000) ÷ 50,000 shares	=(B20-B32)/B72
18	17.	Price-earnings ratio: 6.1 $25 ÷ [($245,000 - $40,000) ÷ 50,000 shares]	=B71/((B20-B32)/B72)
19	18.	Dividends per share: $0.90 $45,000 ÷ 50,000 shares	=B33/B72
20	19.	Dividend yield: 3.6% (45,000 ÷ 50,000 shares) ÷ $25	=(B33/B72)/B71

Try*It* Reminder: Go to the ***Excel Tutor*** titled **Using Parentheses** for additional help!

APPENDIX

Unusual Items on the Income Statement

Generally accepted accounting principles require that unusual items be reported separately on the income statement. This is because such items do not occur frequently and are typically unrelated to current operations. Without separate reporting of these items, users of the financial statements might be misled about current and future operations.

Unusual items on the income statement are classified as one of the following:

1. Affecting the *current period* income statement
2. Affecting a *prior period* income statement

Unusual Items Affecting the Current Period's Income Statement

Unusual items affecting the current period's income statement include the following:

1. Discontinued operations
2. Extraordinary items

These items are reported separately on the income statement for any period in which they occur.

Discontinued Operations A company may discontinue a segment of its operations by selling or abandoning the segment's operations. For example, a retailer might decide to sell its product only online and, thus, discontinue selling its merchandise at its retail outlets (stores).

Any gain or loss on discontinued operations is reported on the income statement as a *Gain (or loss) from discontinued operations*. It is reported immediately following *Income from continuing operations*.

To illustrate, assume that Jones Corporation produces and sells electrical products, hardware supplies, and lawn equipment. Because of lack of profits, Jones discontinues its electrical products operation and sells the remaining inventory and other assets at a loss of $100,000. Exhibit 11 illustrates the reporting of the loss on discontinued operations.[3]

In addition, a note accompanying the income statement should describe the operations sold including such details as the date operations were discontinued, the assets sold, and the effect (if any) on current and future operations.

Extraordinary Items An **extraordinary item** is defined as an event or a transaction that has both of the following characteristics:

1. Unusual in nature
2. Infrequent in occurrence

Gains and losses from natural disasters such as floods, earthquakes, and fires are normally reported as extraordinary items, provided that they occur infrequently. Gains or losses from land or buildings taken (condemned) for public use are also reported as extraordinary items.

EXHIBIT 11

Unusual Items in the Income Statement

Jones Corporation
Income Statement
For the Year Ended December 31, 2012

Net sales	$12,350,000
Cost of merchandise sold	5,800,000
Gross profit	$ 6,550,000
Selling and administrative expenses	5,240,000
Income from continuing operations before income tax	$ 1,310,000
Income tax expense	620,000
Income from continuing operations	$ 690,000
Loss on discontinued operations	100,000
Income before extraordinary items	$ 590,000
Extraordinary items:	
Gain on condemnation of land	150,000
Net income	$ 740,000

---

[3] The gain or loss on discontinued operations is reported net of any tax effects. To simplify, the tax effects are not specifically identified in Exhibit 11.

Any gain or loss from extraordinary items is reported on the income statement as *Gain (or loss) from extraordinary item*. It is reported immediately following *Income from continuing operations* and any *Gain (or loss) on discontinued operations*.

To illustrate, assume that land owned by Jones Corporation was taken for public use (condemned) by the local government. The condemnation of the land resulted in a gain of $150,000. Exhibit 11 illustrates the reporting of the extraordinary gain.[4]

Reporting Earnings per Share Earnings per common share should be reported separately for discontinued operations and extraordinary items. To illustrate, a partial income statement for Jones Corporation is shown in Exhibit 12.

Exhibit 12 reports earnings per common share for income from continuing operations, discontinued operations, and extraordinary items. However, only earnings per share for income from continuing operations and net income are required by generally accepted accounting principles. The other per-share amounts may be presented in the notes to the financial statements.

Unusual Items Affecting the Prior Period's Income Statement

An unusual item may occur that affects a prior period's income statement. Two such items are as follows:

1. Errors in applying generally accepted accounting principles
2. Changes from one generally accepted accounting principle to another

If an error is discovered in a prior period's financial statement, the prior-period statement and all following statements are restated and thus corrected.

A company may change from one generally accepted accounting principle to another. In this case, the prior-period financial statements are restated as if the new accounting principle had always been used.[5]

For both of the preceding items, the current-period earnings are not affected. That is, only the earnings reported in prior periods are restated. However, because the prior earnings are restated, the beginning balance of Retained Earnings may also have to be restated. This, in turn, may cause the restatement of other balance sheet accounts. Illustrations of these types of adjustments and restatements are provided in advanced accounting courses.

EXHIBIT 12

Income Statement with Earnings per Share

Jones Corporation
Income Statement
For the Year Ended December 31, 2012

Earnings per common share:	
Income from continuing operations	$3.45
Loss on discontinued operations	0.50
Income before extraordinary items	$2.95
Extraordinary items:	
Gain on condemnation of land	0.75
Net income	$3.70

---

[4] The gain or loss on extraordinary operations is reported net of any tax effects.

[5] Changes from one acceptable depreciation method to another acceptable depreciation method are an exception to this general rule and are to be treated prospectively as a change in estimate, as discussed in Chapter 10.

At a Glance 17

OBJ. 1 Describe basic financial statement analytical methods.

Key Points The basic financial statements provide much of the information users need to make economic decisions. Analytical procedures are used to compare items on a current financial statement with related items on earlier statements, or to examine relationships within a financial statement.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare a vertical analysis from a company's financial statements.	EE17-1	PE17-1A, 17-1B
• Prepare a horizontal analysis from a company's financial statements.	EE17-2	PE17-2A, 17-2B
• Prepare common-sized financial statements.		

OBJ. 2 Use financial statement analysis to assess the solvency of a business.

Key Points All users of financial statements are interested in the ability of a business to pay its debts (solvency) and earn income (profitability). Solvency and profitability are interrelated. Solvency analysis is normally assessed by examining the following: current position analysis, accounts receivable analysis, inventory analysis, the ratio of fixed assets to long-term liabilities, the ratio of liabilities to stockholders' equity, and the number of times interest charges are earned.

Learning Outcomes	Example Exercises	Practice Exercises
• Determine working capital.		
• Compute and interpret the current ratio.	EE17-3	PE17-3A, 17-3B
• Compute and interpret the quick ratio.	EE17-3	PE17-3A, 17-3B
• Compute and interpret accounts receivable turnover.	EE17-4	PE17-4A, 17-4B
• Compute and interpret number of days' sales in receivables.	EE17-4	PE17-4A, 17-4B
• Compute and interpret inventory turnover.	EE17-5	PE17-5A, 17-5B
• Compute and interpret number of days' sales in inventory.	EE17-5	PE17-5A, 17-5B
• Compute and interpret the ratio of fixed assets to long-term liabilities.	EE17-6	PE17-6A, 17-6B
• Compute and interpret the ratio of liabilities to stockholders' equity.	EE17-6	PE17-6A, 17-6B
• Compute and interpret the number of times interest charges are earned.	EE17-7	PE17-7A, 17-7B

OBJ. 3 Use financial statement analysis to assess the profitability of a business.

Key Points Profitability analysis focuses on the ability of a company to earn profits. This ability is reflected in the company's operating results as reported on the income statement and resources available as reported on the balance sheet. Major analyses include the ratio of net sales to assets, the rate earned on total assets, the rate earned on stockholders' equity, the rate earned on common stockholders' equity, earnings per share on common stock, the price-earnings ratio, dividends per share, and dividend yield.

Learning Outcomes	Example Exercises	Practice Exercises
• Compute and interpret the ratio of net sales to assets.	EE17-8	PE17-8A, 17-8B
• Compute and interpret the rate earned on total assets.	EE17-9	PE17-9A, 17-9B
• Compute and interpret the rate earned on stockholders' equity.	EE17-10	PE17-10A, 17-10B
• Compute and interpret the rate earned on common stockholders' equity.	EE17-10	PE17-10A, 17-10B
• Compute and interpret the earnings per share on common stock.	EE17-11	PE17-11A, 17-11B
• Compute and interpret the price-earnings ratio.	EE17-11	PE17-11A, 17-11B
• Compute and interpret the dividends per share and dividend yield.		
• Describe the uses and limitations of analytical measures.		

OBJ. 4 Describe the contents of corporate annual reports.

Key Points Corporations normally issue annual reports to their stockholders and other interested parties. Such reports summarize the corporation's operating activities for the past year and plans for the future.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the elements of a corporate annual report.		

Key Terms

accounts receivable analysis (789)
accounts receivable turnover (789)
common-sized statement (785)
current position analysis (786)
current ratio (787)
dividend yield (800)
dividends per share (799)
earnings per share (EPS) on common stock (798)
extraordinary item (806)
horizontal analysis (780)
inventory analysis (790)
inventory turnover (791)
Management's Discussion and Analysis (MD&A) (801)
number of days' sales in inventory (791)
number of days' sales in receivables (790)
number of times interest charges are earned (793)
price-earnings (P/E) ratio (799)
profitability (786)
quick assets (788)
quick ratio (788)
rate earned on common stockholders' equity (797)
rate earned on stockholders' equity (796)
rate earned on total assets (795)
ratio of fixed assets to long-term liabilities (792)
ratio of liabilities to stockholders' equity (792)
ratio of net sales to assets (794)
solvency (786)
vertical analysis (783)
working capital (787)

Illustrative Problem

Rainbow Paint Co.'s comparative financial statements for the years ending December 31, 2012 and 2011, are as follows. The market price of Rainbow Paint Co.'s common stock was $25 on December 31, 2012, and $30 on December 31, 2011.

Rainbow Paint Co.
Comparative Income Statement
For the Years Ended December 31, 2012 and 2011

	2012	2011
Sales	$5,125,000	$3,257,600
Sales returns and allowances	125,000	57,600
Net sales	$5,000,000	$3,200,000
Cost of goods sold	3,400,000	2,080,000
Gross profit	$1,600,000	$1,120,000
Selling expenses	$ 650,000	$ 464,000
Administrative expenses	325,000	224,000
Total operating expenses	$ 975,000	$ 688,000
Income from operations	$ 625,000	$ 432,000
Other income	25,000	19,200
	$ 650,000	$ 451,200
Other expense (interest)	105,000	64,000
Income before income tax	$ 545,000	$ 387,200
Income tax expense	300,000	176,000
Net income	$ 245,000	$ 211,200

Rainbow Paint Co.
Comparative Retained Earnings Statement
For the Years Ended December 31, 2012 and 2011

	2012	2011
Retained earnings, January 1	$723,000	$581,800
Add net income for year	245,000	211,200
Total	$968,000	$793,000
Deduct dividends:		
On preferred stock	$ 40,000	$ 40,000
On common stock	45,000	30,000
Total	$ 85,000	$ 70,000
Retained earnings, December 31	$883,000	$723,000

Rainbow Paint Co.
Comparative Balance Sheet
December 31, 2012 and 2011

	Dec. 31, 2012	Dec. 31, 2011
Assets		
Current assets:		
Cash	$ 175,000	$ 125,000
Temporary investments	150,000	50,000
Accounts receivable (net)	425,000	325,000
Inventories	720,000	480,000
Prepaid expenses	30,000	20,000
Total current assets	$1,500,000	$1,000,000
Long-term investments	250,000	225,000
Property, plant, and equipment (net)	2,093,000	1,948,000
Total assets	$3,843,000	$3,173,000
Liabilities		
Current liabilities	$ 750,000	$ 650,000
Long-term liabilities:		
Mortgage note payable, 10%, due 2015	$ 410,000	—
Bonds payable, 8%, due 2018	800,000	$ 800,000
Total long-term liabilities	$1,210,000	$ 800,000
Total liabilities	$1,960,000	$1,450,000
Stockholders' Equity		
Preferred 8% stock, $100 par	$ 500,000	$ 500,000
Common stock, $10 par	500,000	500,000
Retained earnings	883,000	723,000
Total stockholders' equity	$1,883,000	$1,723,000
Total liabilities and stockholders' equity	$3,843,000	$3,173,000

Instructions

Determine the following measures for 2012:

1. Working capital
2. Current ratio
3. Quick ratio
4. Accounts receivable turnover
5. Number of days' sales in receivables
6. Inventory turnover
7. Number of days' sales in inventory
8. Ratio of fixed assets to long-term liabilities
9. Ratio of liabilities to stockholders' equity
10. Number of times interest charges are earned
11. Number of times preferred dividends earned
12. Ratio of net sales to assets
13. Rate earned on total assets
14. Rate earned on stockholders' equity
15. Rate earned on common stockholders' equity

16. Earnings per share on common stock
17. Price-earnings ratio
18. Dividends per share
19. Dividend yield

Solution

(Ratios are rounded to the nearest single digit after the decimal point.)

1. Working capital: $750,000
   $1,500,000 – $750,000
2. Current ratio: 2.0
   $1,500,000 ÷ $750,000
3. Quick ratio: 1.0
   $750,000 ÷ $750,000
4. Accounts receivable turnover: 13.3
   $5,000,000 ÷ [($425,000 + $325,000) ÷ 2]
5. Number of days' sales in receivables: 27.4 days
   $5,000,000 ÷ 365 days = $13,699
   $375,000 ÷ $13,699
6. Inventory turnover: 5.7
   $3,400,000 ÷ [($720,000 + $480,000) ÷ 2]
7. Number of days' sales in inventory: 64.4 days
   $3,400,000 ÷ 365 days = $9,315
   $600,000 ÷ $9,315
8. Ratio of fixed assets to long-term liabilities: 1.7
   $2,093,000 ÷ $1,210,000
9. Ratio of liabilities to stockholders' equity: 1.0
   $1,960,000 ÷ $1,883,000
10. Number of times interest charges are earned: 6.2
    ($545,000 + $105,000) ÷ $105,000
11. Number of times preferred dividends earned: 6.1
    $245,000 ÷ $40,000
12. Ratio of net sales to assets: 1.5
    $5,000,000 ÷ [($3,593,000 + $2,948,000) ÷ 2]
13. Rate earned on total assets: 10.0%
    ($245,000 + $105,000) ÷ [($3,843,000 + $3,173,000) ÷ 2]
14. Rate earned on stockholders' equity: 13.6%
    $245,000 ÷ [($1,883,000 + $1,723,000) ÷ 2]
15. Rate earned on common stockholders' equity: 15.7%
    ($245,000 – $40,000) ÷ [($1,383,000 + $1,223,000) ÷ 2]
16. Earnings per share on common stock: $4.10
    ($245,000 – $40,000) ÷ 50,000 shares
17. Price-earnings ratio: 6.1
    $25 ÷ $4.10
18. Dividends per share: $0.90
    $45,000 ÷ 50,000 shares
19. Dividend yield: 3.6%
    $0.90 ÷ $25

Discussion Questions

1. What is the difference between horizontal and vertical analysis of financial statements?
2. What is the advantage of using comparative statements for financial analysis rather than statements for a single date or period?
3. The current year's amount of net income (after income tax) is 20% larger than that of the preceding year. Does this indicate an improved operating performance? Discuss.
4. How would the current and quick ratios of a service business compare?
5. a. Why is it advantageous to have a high inventory turnover?
   b. Is it possible for the inventory turnover to be too high? Discuss.
   c. Is it possible to have a high inventory turnover and a high number of days' sales in inventory? Discuss.
6. What do the following data taken from a comparative balance sheet indicate about the company's ability to borrow additional funds on a long-term basis in the current year as compared to the preceding year?

	Current Year	Preceding Year
Fixed assets (net)	$600,000	$720,000
Total long-term liabilities	120,000	180,000

7. a. How does the rate earned on total assets differ from the rate earned on stockholders' equity?
   b. Which ratio is normally higher? Explain.
8. a. Why is the rate earned on stockholders' equity by a thriving business ordinarily higher than the rate earned on total assets?
   b. Should the rate earned on common stockholders' equity normally be higher or lower than the rate earned on total stockholders' equity? Explain.
9. The net income (after income tax) of McCants Inc. was $40 per common share in the latest year and $100 per common share for the preceding year. At the beginning of the latest year, the number of shares outstanding was doubled by a stock split. There were no other changes in the amount of stock outstanding. What were the earnings per share in the preceding year, adjusted for comparison with the latest year?
10. Describe two reports provided by independent auditors in the annual report to shareholders.

Practice Exercises

Learning Objectives | Example Exercises

OBJ. 1 EE 17-1 p. 783

PE 17-1A Horizontal analysis

The comparative accounts payable and long-term debt balances of a company are provided below.

	2012	2011
Accounts payable	$114,000	$100,000
Long-term debt	143,000	130,000

Based on this information, what is the amount and percentage of increase or decrease that would be shown in a balance sheet with horizontal analysis?

OBJ. 1 EE 17-1 p. 783

PE 17-1B Horizontal analysis

The comparative temporary investments and inventory balances for a company are provided below.

	2012	2011
Temporary investments	$218,400	$240,000
Inventory	269,800	284,000

Based on this information, what is the amount and percentage of increase or decrease that would be shown in a balance sheet with horizontal analysis?

OBJ. 1 EE 17-2 p. 785

PE 17-2A Vertical analysis

Income statement information for Battus Corporation is provided below.

Sales	$680,000
Gross profit	231,200
Net income	74,800

Prepare a vertical analysis of the income statement for Battus Corporation.

OBJ. 1 EE 17-2 p. 785

PE 17-2B Vertical analysis

Income statement information for Canace Corporation is provided below.

Sales	$1,400,000
Cost of goods sold	910,000
Gross profit	490,000

Prepare a vertical analysis of the income statement for Canace Corporation.

OBJ. 2 EE 17-3 p. 789

PE 17-3A Current position analysis

The following items are reported on a company's balance sheet:

Cash	$200,000
Temporary investments	100,000
Accounts receivable (net)	60,000
Inventory	100,000
Accounts payable	200,000

Determine (a) the current ratio and (b) the quick ratio. Round to one decimal place.

Learning Objectives *Example Exercises*

OBJ. 2 **EE 17-3** *p. 789*

PE 17-3B Current position analysis

The following items are reported on a company's balance sheet:

Cash	$250,000
Temporary investments	180,000
Accounts receivable (net)	220,000
Inventory	200,000
Accounts payable	500,000

Determine (a) the current ratio and (b) the quick ratio. Round to one decimal place.

OBJ. 2 **EE 17-4** *p. 790*

PE 17-4A Accounts receivable analysis

A company reports the following:

Net sales	$1,600,000
Average accounts receivable (net)	100,000

Determine (a) the accounts receivable turnover and (b) the number of days' sales in receivables. Round to one decimal place.

OBJ. 2 **EE 17-4** *p. 790*

PE 17-4B Accounts receivable analysis

A company reports the following:

Net sales	$700,000
Average accounts receivable (net)	50,000

Determine (a) the accounts receivable turnover and (b) the number of days' sales in receivables. Round to one decimal place.

OBJ. 2 **EE 17-5** *p. 792*

PE 17-5A Inventory analysis

A company reports the following:

Cost of goods sold	$880,000
Average inventory	110,000

Determine (a) the inventory turnover and (b) the number of days' sales in inventory. Round to one decimal place.

OBJ. 2 **EE 17-5** *p. 792*

PE 17-5B Inventory analysis

A company reports the following:

Cost of goods sold	$360,000
Average inventory	50,000

Determine (a) the inventory turnover and (b) the number of days' sales in inventory. Round to one decimal place.

OBJ. 2 **EE 17-6** *p. 793*

PE 17-6A Long-term solvency analysis

The following information was taken from Wheat Company's balance sheet:

Fixed assets (net)	$836,000
Long-term liabilities	380,000
Total liabilities	550,000
Total stockholders' equity	500,000

Determine the company's (a) ratio of fixed assets to long-term liabilities and (b) ratio of liabilities to stockholders' equity.

Learning Objectives *Example Exercises*

OBJ. 2 **EE 17-6** *p. 793*

PE 17-6B Long-term solvency analysis

The following information was taken from Chaff Company's balance sheet:

Fixed assets (net)	$1,000,000
Long-term liabilities	625,000
Total liabilities	840,000
Total stockholders' equity	600,000

Determine the company's (a) ratio of fixed assets to long-term liabilities and (b) ratio of liabilities to stockholders' equity.

OBJ. 2 **EE 17-7** *p. 794*

PE 17-7A Times interest charges are earned

A company reports the following:

Income before income tax	$4,000,000
Interest expense	500,000

Determine the number of times interest charges are earned.

OBJ. 2 **EE 17-7** *p. 794*

PE 17-7B Times interest charges are earned

A company reports the following:

Income before income tax	$10,000,000
Interest expense	800,000

Determine the number of times interest charges are earned.

OBJ. 3 **EE 17-8** *p. 795*

PE 17-8A Net sales to assets

A company reports the following:

Net sales	$1,200,000
Average total assets	750,000

Determine the ratio of net sales to assets.

OBJ. 3 **EE 17-8** *p. 795*

PE 17-8B Net sales to assets

A company reports the following:

Net sales	$3,500,000
Average total assets	2,500,000

Determine the ratio of net sales to assets.

OBJ. 3 **EE 17-9** *p. 796*

PE 17-9A Rate earned on total assets

A company reports the following income statement and balance sheet information for the current year:

Net income	$ 820,000
Interest expense	80,000
Average total assets	5,000,000

Determine the rate earned on total assets.

OBJ. 3 **EE 17-9** *p. 796*

PE 17-9B Rate earned on total assets

A company reports the following income statement and balance sheet information for the current year:

Net income	$ 700,000
Interest expense	50,000
Average total assets	4,687,500

Determine the rate earned on total assets.

Learning Objectives	*Example Exercises*

OBJ. 3 **EE 17-10** *p. 798*

PE 17-10A Common stockholders' profitability analysis

A company reports the following:

Net income	$ 210,000
Preferred dividends	30,000
Average stockholders' equity	1,750,000
Average common stockholders' equity	1,000,000

Determine (a) the rate earned on stockholders' equity and (b) the rate earned on common stockholders' equity. Round to one decimal place.

OBJ. 3 **EE 17-10** *p. 798*

PE 17-10B Common stockholders' profitability analysis

A company reports the following:

Net income	$ 600,000
Preferred dividends	50,000
Average stockholders' equity	6,000,000
Average common stockholders' equity	5,000,000

Determine (a) the rate earned on stockholders' equity and (b) the rate earned on common stockholders' equity. Round to one decimal place.

OBJ. 3 **EE 17-11** *p. 800*

PE 17-11A Earnings per share and price-earnings

A company reports the following:

Net income	$440,000
Preferred dividends	$40,000
Shares of common stock outstanding	50,000
Market price per share of common stock	$100

a. Determine the company's earnings per share on common stock.

b. Determine the company's price-earnings ratio.

OBJ. 3 **EE 17-11** *p. 800*

PE 17-11B Earnings per share and price-earnings

A company reports the following:

Net income	$650,000
Preferred dividends	$50,000
Shares of common stock outstanding	120,000
Market price per share of common stock	$75

a. Determine the company's earnings per share on common stock.

b. Determine the company's price-earnings ratio.

Exercises

OBJ. 1

✔ a. 2012 net income: $4,000; 0.5% of sales

EX 17-1 Vertical analysis of income statement

Revenue and expense data for Mandell Technologies Co. are as follows:

	2012	2011
Sales	$800,000	$740,000
Cost of goods sold	504,000	407,000
Selling expenses	120,000	140,600
Administrative expenses	128,000	125,800
Income tax expense	33,600	48,100

a. Prepare an income statement in comparative form, stating each item for both 2012 and 2011 as a percent of sales. Round to one decimal place.

b. Comment on the significant changes disclosed by the comparative income statement.

OBJ. 1

✔ a. Fiscal year 2008 income from continuing operations, 29.2% of revenues

EX 17-2 Vertical analysis of income statement

The following comparative income statement (in thousands of dollars) for the fiscal years 2008 and 2007 was adapted from the annual report of Speedway Motorsports, Inc., owner and operator of several major motor speedways, such as the Atlanta, Texas, and Las Vegas Motor Speedways.

	Fiscal Year 2008	Fiscal Year 2007
Revenues:		
Admissions	$188,036	$179,765
Event-related revenue	211,630	197,321
NASCAR broadcasting revenue	168,159	142,517
Other operating revenue	43,168	42,030
Total revenue	$610,993	$561,633
Expenses and other:		
Direct expense of events	$113,477	$100,414
NASCAR purse and sanction fees	118,766	100,608
Other direct expenses	116,376	163,222
General and administrative	84,029	80,913
Total expenses and other	$432,648	$445,157
Income from continuing operations	$178,345	$116,476

a. Prepare a comparative income statement for fiscal years 2007 and 2008 in vertical form, stating each item as a percent of revenues. Round to one decimal place.

b. Comment on the significant changes.

OBJ. 1

✔ a. Shoesmith net income: $144,000; 3.6% of sales

EX 17-3 Common-sized income statement

Revenue and expense data for the current calendar year for Shoesmith Electronics Company and for the electronics industry are as follows. The Shoesmith Electronics Company data are expressed in dollars. The electronics industry averages are expressed in percentages.

	Shoesmith Electronics Company	Electronics Industry Average
Sales	$4,200,000	105.0%
Sales returns and allowances	200,000	5.0
Net sales	$4,000,000	100.0%
Cost of goods sold	2,120,000	59.0
Gross profit	$1,880,000	41.0%
Selling expenses	$1,160,000	24.0%
Administrative expenses	480,000	10.5
Total operating expenses	$1,640,000	34.5%
Operating income	$ 240,000	6.5%
Other income	84,000	2.1
	$ 324,000	8.6%
Other expense	60,000	1.5
Income before income tax	$ 264,000	7.1%
Income tax	120,000	6.0
Net income	$ 144,000	1.1%

a. Prepare a common-sized income statement comparing the results of operations for Shoesmith Electronics Company with the industry average. Round to one decimal place.

b. As far as the data permit, comment on significant relationships revealed by the comparisons.

OBJ. 1

✔ Retained earnings, Dec. 31, 2012, 33.0%

EX 17-4 Vertical analysis of balance sheet

Balance sheet data for Bryant Company on December 31, the end of the fiscal year, are shown below.

	2012	2011
Current assets	$ 775,000	$ 585,000
Property, plant, and equipment	1,425,000	1,597,500
Intangible assets	300,000	67,500
Current liabilities	525,000	360,000
Long-term liabilities	900,000	855,000
Common stock	250,000	270,000
Retained earnings	825,000	765,000

Prepare a comparative balance sheet for 2012 and 2011, stating each asset as a percent of total assets and each liability and stockholders' equity item as a percent of the total liabilities and stockholders' equity. Round to one decimal place.

OBJ. 1

✔ a. Net income increase, 105.0%

EX 17-5 Horizontal analysis of the income statement

Income statement data for Boone Company for the years ended December 31, 2012 and 2011, are as follows:

	2012	2011
Sales	$446,400	$360,000
Cost of goods sold	387,450	315,000
Gross profit	$ 58,950	$ 45,000
Selling expenses	$ 27,900	$ 22,500
Administrative expenses	21,960	18,000
Total operating expenses	$ 49,860	$ 40,500
Income before income tax	$ 9,090	$ 4,500
Income tax expenses	5,400	2,700
Net income	$ 3,690	$ 1,800

a. Prepare a comparative income statement with horizontal analysis, indicating the increase (decrease) for 2012 when compared with 2011. Round to one decimal place.

b. What conclusions can be drawn from the horizontal analysis?

OBJ. 2

✔ a. 2012 working capital, $1,342,000

EX 17-6 Current position analysis

The following data were taken from the balance sheet of Beatty Company:

	Dec. 31, 2012	Dec. 31, 2011
Cash	$ 330,000	$ 238,000
Temporary investments	465,000	385,000
Accounts and notes receivable (net)	425,000	295,000
Inventories	420,000	291,000
Prepaid expenses	312,000	141,000
Total current assets	$1,952,000	$1,350,000
Accounts and notes payable (short-term)	$ 420,000	$ 400,000
Accrued liabilities	190,000	140,000
Total current liabilities	$ 610,000	$ 540,000

a. Determine for each year (1) the working capital, (2) the current ratio, and (3) the quick ratio. Round ratios to one decimal place.

b. What conclusions can be drawn from these data as to the company's ability to meet its currently maturing debts?

OBJ. 2

✓ a. (1) Dec. 27, 2008 current ratio, 1.2

EX 17-7 Current position analysis

PepsiCo, Inc., the parent company of Frito-Lay snack foods and Pepsi beverages, had the following current assets and current liabilities at the end of two recent years:

	Dec. 26, 2009 (in millions)	Dec. 27, 2008 (in millions)
Cash and cash equivalents	$3,943	$2,064
Short-term investments, at cost	192	213
Accounts and notes receivable, net	4,624	4,683
Inventories	2,618	2,522
Prepaid expenses and other current assets	1,194	1,324
Short-term obligations	464	369
Accounts payable	8,292	6,494
Other current liabilities	0	1,924

a. Determine the (1) current ratio and (2) quick ratio for both years. Round to one decimal place.

b. What conclusions can you draw from these data?

OBJ. 2

EX 17-8 Current position analysis

The bond indenture for the 10-year, 10% debenture bonds dated January 2, 2011, required working capital of $700,000, a current ratio of 1.7, and a quick ratio of 1.2 at the end of each calendar year until the bonds mature. At December 31, 2012, the three measures were computed as follows:

1. Current assets:		
Cash	$302,400	
Temporary investments	144,000	
Accounts and notes receivable (net)	353,600	
Inventories	114,400	
Prepaid expenses	45,600	
Intangible assets	388,000	
Property, plant, and equipment	172,000	
Total current assets (net)		$1,520,000
Current liabilities:		
Accounts and short-term notes payable	$256,000	
Accrued liabilities	544,000	
Total current liabilities		800,000
Working capital		$ 720,000
2. Current ratio	1.9	$1,520,000 ÷ $800,000
3. Quick ratio	1.3	$ 332,000 ÷ $256,000

a. List the errors in the determination of the three measures of current position analysis.

b. Is the company satisfying the terms of the bond indenture?

OBJ. 2

✓ a. Accounts receivable turnover, 2012, 6.6

EX 17-9 Accounts receivable analysis

The following data are taken from the financial statements of Saladin Inc. Terms of all sales are 2/10, n/60.

	2012	2011	2010
Accounts receivable, end of year	$ 221,250	$ 237,000	$247,500
Net sales on account	1,512,225	1,380,825	

a. Determine for each year (1) the accounts receivable turnover and (2) the number of days' sales in receivables. Round to nearest dollar and one decimal place.

b. What conclusions can be drawn from these data concerning accounts receivable and credit policies?

OBJ. 2

EX 17-10 Accounts receivable analysis

Klick Company and Klack Inc., are large retail department stores. Both companies offer credit to their customers through their own credit card operations. Information from the financial statements for both companies for two recent years is as follows (all numbers are in millions):

	Klick	Klack
Merchandise sales	$18,000	$70,980
Credit card receivables—beginning	3,300	9,000
Credit card receviables—ending	2,700	6,600

a. Determine the (1) accounts receivable turnover and (2) the number of days' sales in receivables for both companies. Round to one decimal place.

b. Compare the two companies with regard to their credit card policies.

OBJ. 2

✔ a. Inventory turnover, current year, 8.2

EX 17-11 Inventory analysis

The following data were extracted from the income statement of Hestia Systems Inc.:

	Current Year	Preceding Year
Sales	$2,443,600	$2,592,000
Beginning inventories	158,000	130,000
Cost of goods sold	1,221,800	1,440,000
Ending inventories	140,000	158,000

a. Determine for each year (1) the inventory turnover and (2) the number of days' sales in inventory. Round to the nearest dollar and one decimal place.

b. What conclusions can be drawn from these data concerning the inventories?

OBJ. 2

✔ a. Dell inventory turnover, 49.0

EX 17-12 Inventory analysis

Dell Inc. and Hewlett-Packard Company (HP) compete with each other in the personal computer market. Dell's primary strategy is to assemble computers to customer orders, rather than for inventory. Thus, for example, Dell will build and deliver a computer within four days of a customer entering an order on a Web page. Hewlett-Packard, on the other hand, builds some computers prior to receiving an order, then sells from this inventory once an order is received. Below is selected financial information for both companies from a recent year's financial statements (in millions):

	Dell Inc.	Hewlett-Packard Company
Sales	$61,101	$74,051
Cost of goods sold	50,144	56,503
Inventory, beginning of period	1,180	7,879
Inventory, end of period	867	6,128

a. Determine for both companies (1) the inventory turnover and (2) the number of days' sales in inventory. Round to one decimal place.

b. Interpret the inventory ratios by considering Dell's and Hewlett-Packard's operating strategies.

OBJ. 2

✔ a. Ratio of liabilities to stockholders' equity, Dec. 31, 2012, 0.7

EX 17-13 Ratio of liabilities to stockholders' equity and number of times interest charges earned

The following data were taken from the financial statements of Hermes Inc. for December 31, 2012 and 2011:

	Dec. 31, 2012	Dec. 31, 2011
Accounts payable	$ 473,960	$ 325,000
Current maturities of serial bonds payable	500,000	500,000
Serial bonds payable, 9%, issued 2007, due 2017	2,500,000	3,000,000
Common stock, $1 par value	100,000	100,000
Paid-in capital in excess of par	1,200,000	1,200,000
Retained earnings	3,662,800	2,950,000

The income before income tax was $891,000 and $787,500 for the years 2012 and 2011, respectively.

a. Determine the ratio of liabilities to stockholders' equity at the end of each year. Round to one decimal place.

b. Determine the number of times the bond interest charges are earned during the year for both years. Round to one decimal place.

c. What conclusions can be drawn from these data as to the company's ability to meet its currently maturing debts?

OBJ. 2

✓ a. Hasbro, 1.3

EX 17-14 Ratio of liabilities to stockholders' equity and number of times interest charges earned

Hasbro and Mattel, Inc., are the two largest toy companies in North America. Condensed liabilities and stockholders' equity from a recent balance sheet are shown for each company as follows (in thousands):

	Hasbro	Mattel
Current liabilities	$ 799,892	$ 1,259,974
Long-term debt	709,723	750,000
Other liabilities	268,396	547,930
Total liabilities	$1,778,011	$ 2,557,904
Shareholders' equity:		
Common stock	$ 104,847	$ 441,369
Additional paid in capital	450,155	1,642,092
Retained earnings	2,456,650	2,085,573
Accumulated other comprehensive loss and other equity items	62,256	(430,635)
Treasury stock, at cost	(1,683,122)	(1,621,264)
Total stockholders' equity	$1,390,786	$ 2,117,135
Total liabilities and stockholders' equity	$3,168,797	$ 4,675,039

The income from operations and interest expense from the income statement for both companies were as follows (in thousands):

	Hasbro	Mattel
Income from operations	$494,296	$541,792
Interest expense	47,143	81,944

a. Determine the ratio of liabilities to stockholders' equity for both companies. Round to one decimal place.

b. Determine the number of times interest charges are earned for both companies. Round to one decimal place.

c. Interpret the ratio differences between the two companies.

OBJ. 2

✓ a. H.J. Heinz, 6.9

EX 17-15 Ratio of liabilities to stockholders' equity and ratio of fixed assets to long-term liabilities

Recent balance sheet information for two companies in the food industry, H.J. Heinz Company and The Hershey Company, is as follows (in thousands of dollars):

	H.J. Heinz	Hershey
Net property, plant, and equipment	$1,978,302	$1,458,949
Current liabilities	2,062,846	1,270,212
Long-term debt	5,076,186	1,505,954
Other long-term liabilities	1,305,214	540,354
Stockholders' equity	1,219,938	318,199

a. Determine the ratio of liabilities to stockholders' equity for both companies. Round to one decimal place.

b. Determine the ratio of fixed assets to long-term liabilities for both companies. Round to one decimal place.

c. Interpret the ratio differences between the two companies.

OBJ. 3

✔ a. YRC Worldwide, 2.0

EX 17-16 Ratio of net sales to assets

Three major segments of the transportation industry are motor carriers, such as YRC Worldwide; railroads, such as Union Pacific; and transportation arrangement services, such as C.H. Robinson Worldwide Inc. Recent financial statement information for these three companies is shown as follows (in thousands of dollars):

	YRC Worldwide	Union Pacific	C.H. Robinson Worldwide Inc.
Net sales	$8,940,401	$17,970,000	$8,578,614
Average total assets	4,514,368	38,877,500	1,813,514

a. Determine the ratio of net sales to assets for all three companies. Round to one decimal place.

b. Assume that the ratio of net sales to assets for each company represents their respective industry segment. Interpret the differences in the ratio of net sales to assets in terms of the operating characteristics of each of the respective segments.

OBJ. 3

✔ a. Rate earned on total assets, 2012, 13.0%

EX 17-17 Profitability ratios

The following selected data were taken from the financial statements of Preslar Inc. for December 31, 2012, 2011, and 2010:

	December 31		
	2012	2011	2010
Total assets	$4,500,000	$4,050,000	$3,600,000
Notes payable (8% interest)	1,500,000	1,500,000	1,500,000
Common stock	600,000	600,000	600,000
Preferred 4% stock, $100 par (no change during year)	300,000	300,000	300,000
Retained earnings	1,765,500	1,341,750	900,000

The 2012 net income was $435,750, and the 2011 net income was $453,750. No dividends on common stock were declared between 2010 and 2012.

a. Determine the rate earned on total assets, the rate earned on stockholders' equity, and the rate earned on common stockholders' equity for the years 2011 and 2012. Round to one decimal place.

b. What conclusions can be drawn from these data as to the company's profitability?

OBJ. 3

✔a. 2007 rate earned on total assets, 6.7%

EX 17-18 Profitability ratios

Ann Taylor Retail, Inc., sells professional women's apparel through company-owned retail stores. Recent financial information for Ann Taylor is provided below (all numbers in thousands).

	Fiscal Year Ended	
	February 2, 2008	February 3, 2007
Net income	$97,235	$142,982
Interest expense	2,172	2,230

	February 2, 2008	February 3, 2007	January 28, 2006
Total assets	$1,393,755	$1,568,503	$1,492,906
Total stockholders' equity	839,484	1,049,911	1,034,482

Assume the apparel industry average rate earned on total assets is 5.0%, and the average rate earned on stockholders' equity is 8.0% for the year ended February 2, 2008 (fiscal year 2007).

a. Determine the rate earned on total assets for Ann Taylor for the fiscal years ended February 2, 2008, and February 3, 2007. Round to one digit after the decimal place.

b. Determine the rate earned on stockholders' equity for Ann Taylor for the fiscal years ended February 2, 2008, and February 3, 2007. Round to one decimal place.

c. Evaluate the two-year trend for the profitability ratios determined in (a) and (b).

d. Evaluate Ann Taylor's profit performance relative to the industry.

OBJ. 2, 3

✔ c. Ratio of net sales to assets, 4.5

EX 17-19 Six measures of solvency or profitability

The following data were taken from the financial statements of Ares Inc. for the current fiscal year. Assuming that long-term investments totaled $3,000,000 throughout the year and that total assets were $6,250,000 at the beginning of the current fiscal year, determine the following: (a) ratio of fixed assets to long-term liabilities, (b) ratio of liabilities to stockholders' equity, (c) ratio of net sales to assets, (d) rate earned on total assets, (e) rate earned on stockholders' equity, and (f) rate earned on common stockholders' equity. Round to one decimal place.

Property, plant, and equipment (net)			$ 2,700,000
Liabilities:			
Current liabilities		$ 666,500	
Mortgage note payable, 8%, issued 2001, due 2017		1,800,000	
Total liabilities			$ 2,466,500
Stockholders' equity:			
Preferred $10 stock, $100 par (no change during year)			$ 1,200,000
Common stock, $10 par (no change during year)			1,000,000
Retained earnings:			
Balance, beginning of year	$2,203,000		
Net income	750,000	$2,953,000	
Preferred dividends	$ 120,000		
Common dividends	100,000	220,000	
Balance, end of year			2,733,000
Total stockholders' equity			$ 4,933,000
Net sales			$17,211,375
Interest expense			$ 144,000

OBJ. 2, 3

✔ d. Price-earnings ratio, 14.4

EX 17-20 Six measures of solvency or profitability

The balance sheet for Kronos Inc. at the end of the current fiscal year indicated the following:

Bonds payable, 10% (issued in 2002, due in 2022)	$3,750,000
Preferred $4 stock, $40 par	2,000,000
Common stock, $10 par	3,600,000

Income before income tax was $2,400,000, and income taxes were $400,000, for the current year. Cash dividends paid on common stock during the current year totaled $720,000. The common stock was selling for $72 per share at the end of the year. Determine each of the following: (a) number of times bond interest charges are earned, (b) number of times preferred dividends are earned, (c) earnings per share on common stock, (d) price-earnings ratio, (e) dividends per share of common stock, and (f) dividend yield. Round to one decimal place except earnings per share, which should be rounded to two decimal places.

OBJ. 3

✔ b. Price-earnings ratio, 16.0

EX 17-21 Earnings per share, price-earnings ratio, dividend yield

The following information was taken from the financial statements of Bailey Inc. for December 31 of the current fiscal year:

Common stock, $10 par value (no change during the year)	$4,000,000
Preferred $5 stock, $25 par (no change during the year)	1,250,000

The net income was $1,250,000 and the declared dividends on the common stock were $800,000 for the current year. The market price of the common stock is $40 per share.

For the common stock, determine (a) the earnings per share, (b) the price-earnings ratio, (c) the dividends per share, and (d) the dividend yield. Round to one decimal place except earnings per share, which should be rounded to two decimal places.

OBJ. 3

EX 17-22 Price-earnings ratio; dividend yield

The table below shows the stock price, earnings per share, and dividends per share for three companies as of May 2010:

	Price	Earnings per Share	Dividends per Share
The Home Depot	$ 33.43	$ 1.57	$0.95
Google	493.14	21.99	0.00
The Coca-Cola Company	52.67	3.04	1.76

a. Determine the price-earnings ratio and dividend yield for the three companies. Round to one decimal place.

b. Explain the differences in these ratios across the three companies.

Appendix

EX 17-23 Earnings per share, extraordinary item

✔ b. Earnings per share on common stock, $11.80

The net income reported on the income statement of Styx Co. was $3,200,000. There were 250,000 shares of $5 par common stock and 250,000 shares of $1 preferred stock outstanding throughout the current year. The income statement included two extraordinary items: a $700,000 gain from condemnation of land and a $350,000 loss arising from flood damage, both after applicable income tax. Determine the per-share figures for common stock for (a) income before extraordinary items and (b) net income.

Appendix

EX 17-24 Extraordinary item

Assume that the amount of each of the following items is material to the financial statements. Classify each item as either normally recurring (NR) or extraordinary (E).

a. Gain on sale of land condemned by the local government for a public works project.

b. Uninsured flood loss. (Flood insurance is unavailable because of periodic flooding in the area.)

c. Loss on the disposal of equipment considered to be obsolete because of the development of new technology.

d. Uncollectible accounts expense.

e. Loss on sale of investments in stocks and bonds.

f. Uninsured loss on building due to hurricane damage. The building was purchased by the company in 1910 and had not previously incurred hurricane damage.

g. Interest revenue on notes receivable.

Appendix

EX 17-25 Income statement and earnings per share for extraordinary items and discontinued operations

Eris, Inc., reports the following for 2012:

Income from continuing operations before income tax	$800,000
Extraordinary property loss from hurricane	$100,000*
Loss from discontinued operations	$120,000*
Weighted average number of shares outstanding	50,000
Applicable tax rate	40%

*Net of any tax effect.

a. Prepare a partial income statement for Eris, Inc., beginning with income from continuing operations before income tax.

b. Calculate the earnings per common share for Eris, Inc., including per-share amounts for unusual items.

Appendix

EX 17-26 Unusual items

Discuss whether Daphne Company correctly reported the following items in the financial statements:

a. In 2012, the company discovered a clerical error in the prior year's accounting records. As a result, the reported net income for 2011 was overstated by $30,000. The company corrected this error by restating the prior-year financial statements.

b. In 2012, the company voluntarily changed its method of accounting for long-term construction contracts from the percentage of completion method to the completed contract method. Both methods are acceptable under generally acceptable accounting principles. The cumulative effect of this change was reported as a separate component of income in the 2012 income statement.

Problems Series A

OBJ. 1

✔ 1. Net sales, 14.4% increase

PR 17-1A Horizontal analysis for income statement

For 2012, Eurie Company reported its most significant decline in net income in years. At the end of the year, H. Finn, the president, is presented with the following condensed comparative income statement:

Eurie Company
Comparative Income Statement
For the Years Ended December 31, 2012 and 2011

	2012	2011
Sales	$928,000	$800,000
Sales returns and allowances	70,000	50,000
Net sales	$858,000	$750,000
Cost of goods sold	640,000	500,000
Gross profit	$218,000	$250,000
Selling expenses	$ 85,800	$ 65,000
Administrative expenses	43,400	35,000
Total operating expenses	$129,200	$100,000
Income from operations	$ 88,800	$150,000
Other income	16,000	10,000
Income before income tax	$104,800	$160,000
Income tax expense	9,200	8,000
Net income	$ 95,600	$152,000

Instructions

1. Prepare a comparative income statement with horizontal analysis for the two-year period, using 2011 as the base year. Round to one decimal place.
2. To the extent the data permit, comment on the significant relationships revealed by the horizontal analysis prepared in (1).

OBJ. 1

✔ 1. Net income, 2012, 14.0%

PR 17-2A Vertical analysis for income statement

For 2012, Selene Company initiated a sales promotion campaign that included the expenditure of an additional $25,000 for advertising. At the end of the year, Scott Brown, the president, is presented with the following condensed comparative income statement:

Selene Company
Comparative Income Statement
For the Years Ended December 31, 2012 and 2011

	2012	2011
Sales	$999,600	$867,000
Sales returns and allowances	19,600	17,000
Net sales	$980,000	$850,000
Cost of goods sold	460,600	433,500
Gross profit	$519,400	$416,500
Selling expenses	$225,400	$178,500
Administrative expenses	107,800	102,000
Total operating expenses	$333,200	$280,500
Income from operations	$186,200	$136,000
Other income	49,000	42,500
Income before income tax	$235,200	$178,500
Income tax expense	98,000	85,000
Net income	$137,200	$ 93,500

Instructions

1. Prepare a comparative income statement for the two-year period, presenting an analysis of each item in relationship to net sales for each of the years. Round to one decimal place.
2. To the extent the data permit, comment on the significant relationships revealed by the vertical analysis prepared in (1).

OBJ. 2

✓ 2. c. Current ratio, 2.2

PR 17-3A Effect of transactions on current position analysis

Data pertaining to the current position of Brin Company are as follows:

Cash	$520,000
Temporary investments	380,000
Accounts and notes receivable (net)	700,000
Inventories	720,000
Prepaid expenses	80,000
Accounts payable	300,000
Notes payable (short-term)	360,000
Accrued expenses	340,000

Instructions

1. Compute (a) the working capital, (b) the current ratio, and (c) the quick ratio. Round to one decimal place.
2. List the following captions on a sheet of paper:

Transaction	Working Capital	Current Ratio	Quick Ratio

Compute the working capital, the current ratio, and the quick ratio after each of the following transactions, and record the results in the appropriate columns. *Consider each transaction separately* and assume that only that transaction affects the data given above. Round to one decimal place.

a. Sold temporary investments at no gain or loss, $90,000.
b. Paid accounts payable, $175,000.
c. Purchased goods on account, $125,000.
d. Paid notes payable, $200,000.
e. Declared a cash dividend, $160,000.
f. Declared a common stock dividend on common stock, $45,000.
g. Borrowed cash from bank on a long-term note, $300,000.
h. Received cash on account, $140,000.
i. Issued additional shares of stock for cash, $700,000.
j. Paid cash for prepaid expenses, $80,000.

OBJ. 2, 3

✔ 5. Number of days' sales in receivables, 68.4

PR 17-4A Nineteen measures of solvency and profitability

The comparative financial statements of Blige Inc. are as follows. The market price of Blige Inc. common stock was $60 on December 31, 2012.

Blige Inc.
Comparative Retained Earnings Statement
For the Years Ended December 31, 2012 and 2011

	2012	2011
Retained earnings, January 1	$1,810,000	$1,526,000
Add net income for year	410,750	322,000
Total	$2,220,750	$1,848,000
Deduct dividends:		
On preferred stock	$ 16,000	$ 16,000
On common stock	22,000	22,000
Total	$ 38,000	$ 38,000
Retained earnings, December 31	$2,182,750	$1,810,000

Blige Inc.
Comparative Income Statement
For the Years Ended December 31, 2012 and 2011

	2012	2011
Sales	$2,211,000	$2,037,200
Sales returns and allowances	11,000	7,200
Net sales	$2,200,000	$2,030,000
Cost of goods sold	825,000	811,200
Gross profit	$1,375,000	$1,218,800
Selling expenses	$ 445,500	$ 484,000
Administrative expenses	321,750	290,400
Total operating expenses	$ 767,250	$ 774,400
Income from operations	$ 607,750	$ 444,400
Other income	33,000	26,400
	$ 640,750	$ 470,800
Other expense (interest)	176,000	96,000
Income before income tax	$ 464,750	$ 374,800
Income tax expense	54,000	52,800
Net income	$ 410,750	$ 322,000

Blige Inc.
Comparative Balance Sheet
December 31, 2012 and 2011

	Dec. 31, 2012	Dec. 31, 2011
Assets		
Current assets:		
Cash	$ 528,000	$ 410,000
Temporary investments	800,000	725,000
Accounts receivable (net)	425,000	400,000
Inventories	310,000	240,000
Prepaid expenses	100,000	75,000
Total current assets	$2,163,000	$1,850,000
Long-term investments	633,000	560,000
Property, plant, and equipment (net)	3,146,750	2,150,000
Total assets	$5,942,750	$4,560,000
Liabilities		
Current liabilities	$ 720,000	$ 710,000
Long-term liabilities:		
Mortgage note payable, 8%, due 2017	$1,000,000	$ 0
Bonds payable, 8%, due 2021	1,200,000	1,200,000
Total long-term liabilities	$2,200,000	$1,200,000
Total liabilities	$2,920,000	$1,910,000
Stockholders' Equity		
Preferred $0.80 stock, $20 par	$ 400,000	$ 400,000
Common stock, $10 par	440,000	440,000
Retained earnings	2,182,750	1,810,000
Total stockholders' equity	$3,022,750	$2,650,000
Total liabilities and stockholders' equity	$5,942,750	$4,560,000

Instructions

Determine the following measures for 2012, rounding to one decimal place:

1. Working capital
2. Current ratio
3. Quick ratio
4. Accounts receivable turnover
5. Number of days' sales in receivables
6. Inventory turnover
7. Number of days' sales in inventory
8. Ratio of fixed assets to long-term liabilities
9. Ratio of liabilities to stockholders' equity
10. Number of times interest charges earned
11. Number of times preferred dividends earned
12. Ratio of net sales to assets
13. Rate earned on total assets
14. Rate earned on stockholders' equity
15. Rate earned on common stockholders' equity
16. Earnings per share on common stock
17. Price-earnings ratio
18. Dividends per share of common stock
19. Dividend yield

OBJ. 2, 3

PR 17-5A Solvency and profitability trend analysis

Itzkoff Company has provided the following comparative information:

	2012	2011	2010	2009	2008
Net income	$ 170,879	$ 229,985	$ 394,485	$ 552,500	$ 500,000
Interest expense	350,027	325,002	300,094	281,250	250,000
Income tax expense	49,492	83,179	166,358	124,800	156,000
Total assets (ending balance)	6,023,425	5,624,113	5,089,695	4,552,500	3,750,000
Total stockholders' equity (ending balance)	2,647,848	2,476,970	2,246,985	1,852,500	1,300,000
Average total assets	5,823,769	5,356,904	4,821,098	4,151,250	3,375,000
Average stockholders' equity	2,562,409	2,361,977	2,049,743	1,576,250	1,050,000

You have been asked to evaluate the historical performance of the company over the last five years.

Selected industry ratios have remained relatively steady at the following levels for the last five years:

	2008–2012
Rate earned on total assets	11%
Rate earned on stockholders' equity	16%
Number of times interest charges earned	3.1
Ratio of liabilities to stockholders' equity	1.5

Instructions

1. Prepare four line graphs with the ratio on the vertical axis and the years on the horizontal axis for the following four ratios (rounded to one decimal place):
   a. Rate earned on total assets
   b. Rate earned on stockholders' equity
   c. Number of times interest charges earned
   d. Ratio of liabilities to stockholders' equity

   Display both the company ratio and the industry benchmark on each graph. That is, each graph should have two lines.
2. Prepare an analysis of the graphs in (1).

Problems Series B

OBJ. 1

✔ 1. Net sales, 26.1% increase

PR 17-1B Horizontal analysis for income statement

For 2012, McFadden Inc. reported its most significant increase in net income in years. At the end of the year, John Mayer, the president, is presented with the following condensed comparative income statement:

McFadden Inc.
Comparative Income Statement
For the Years Ended December 31, 2012 and 2011

	2012	2011
Sales	$516,600	$410,000
Sales returns and allowances	12,200	10,000
Net sales	$504,400	$400,000
Cost of goods sold	240,000	200,000
Gross profit	$264,400	$200,000
Selling expenses	$ 69,600	$ 60,000
Administrative expenses	44,800	40,000
Total operating expenses	$114,400	$100,000
Income from operations	$150,000	$100,000
Other income	12,600	10,000
Income before income tax	$162,600	$110,000
Income tax expense	9,000	5,000
Net income	$153,600	$105,000

Instructions

1. Prepare a comparative income statement with horizontal analysis for the two-year period, using 2011 as the base year. Round to one decimal place.
2. To the extent the data permit, comment on the significant relationships revealed by the horizontal analysis prepared in (1).

OBJ. 1

✔ 1. Net income, 2011, 11.0%

PR 17-2B Vertical analysis for income statement

For 2012, Avatar Industries Inc. initiated a sales promotion campaign that included the expenditure of an additional $35,000 for advertising. At the end of the year, Leif Grando, the president, is presented with the following condensed comparative income statement:

Avatar Industries Inc.
Comparative Income Statement
For the Years Ended December 31, 2012 and 2011

	2012	2011
Sales	$630,000	$504,000
Sales returns and allowances	30,000	24,000
Net sales	$600,000	$480,000
Cost of goods sold	330,000	259,200
Gross profit	$270,000	$220,800
Selling expenses	$144,000	$ 86,400
Adminstrative expenses	72,000	62,400
Total operating expenses	$216,000	$148,800
Income from operations	$ 54,000	$ 72,000
Other income	24,000	19,200
Income before income tax	$ 78,000	$ 91,200
Income tax expense (benefit)	48,000	38,400
Net income (loss)	$ 30,000	$ 52,800

Instructions

1. Prepare a comparative income statement for the two-year period, presenting an analysis of each item in relationship to net sales for each of the years. Round to one decimal place.
2. To the extent the data permit, comment on the significant relationships revealed by the vertical analysis prepared in (1).

OBJ. 2

✔ 2. e. Quick ratio, 0.9

PR 17-3B Effect of transactions on current position analysis

Data pertaining to the current position of Diaz Industries, Inc., are as follows:

Cash	$560,000
Temporary investments	520,000
Accounts and notes receivable (net)	800,000
Inventories	900,000
Prepaid expenses	100,000
Accounts payable	800,000
Notes payable (short-term)	700,000
Accrued expenses	300,000

Instructions

1. Compute (a) the working capital, (b) the current ratio, and (c) the quick ratio. Round to one decimal place.
2. List the following captions on a sheet of paper:

Transaction	Working Capital	Current Ratio	Quick Ratio

Compute the working capital, the current ratio, and the quick ratio after each of the following transactions, and record the results in the appropriate columns. *Consider each transaction separately* and assume that only that transaction affects the data given above. Round to one decimal place.

a. Sold temporary investments at no gain or loss, $200,000.
b. Paid accounts payable, $400,000.
c. Purchased goods on account, $150,000.
d. Paid notes payable, $380,000.
e. Declared a cash dividend, $220,000.
f. Declared a common stock dividend on common stock, $200,000.
g. Borrowed cash from bank on a long-term note, $680,000.
h. Received cash on account, $110,000.
i. Issued additional shares of stock for cash, $1,400,000.
j. Paid cash for prepaid expenses, $50,000.

OBJ. 2, 3

✔ 9. Ratio of liabilities to stockholders' equity, 0.5

PR 17-4B Nineteen measures of solvency and profitability

The comparative financial statements of Chattah Inc. are as follows. The market price of Chattah Inc. common stock was $25 on December 31, 2012.

Chattah Inc.
Comparative Retained Earnings Statement
For the Years Ended December 31, 2012 and 2011

	2012	2011
Retained earnings, January 1	$1,646,120	$ 976,120
Add net income for year	847,000	850,000
Total	$2,493,120	$1,826,120
Deduct dividends:		
On preferred stock	$ 30,000	$ 30,000
On common stock	150,000	150,000
Total	$ 180,000	$ 180,000
Retained earnings, December 31	$2,313,120	$1,646,120

Chattah Inc.
Comparative Income Statement
For the Years Ended December 31, 2012 and 2011

	2012	2011
Sales (all on account)	$9,056,000	$7,840,000
Sales returns and allowances	56,000	40,000
Net sales	$9,000,000	$7,800,000
Cost of goods sold	4,500,000	3,680,000
Gross profit	$4,500,000	$4,120,000
Selling expenses	$1,936,000	$1,840,000
Administrative expenses	1,296,000	1,216,000
Total operating expenses	$3,232,000	$3,056,000
Income from operations	$1,268,000	$1,064,000
Other income	128,000	96,000
	$1,396,000	$1,160,000
Other expense (interest)	309,000	110,000
Income before income tax	$1,087,000	$1,050,000
Income tax expense	240,000	200,000
Net income	$ 847,000	$ 850,000

Chattah Inc.
Comparative Balance Sheet
December 31, 2012 and 2011

	Dec. 31, 2012	Dec. 31, 2011
Assets		
Current assets:		
Cash	$ 420,000	$ 306,000
Temporary investments	760,000	408,000
Accounts receivable (net)	663,000	482,120
Inventories	1,072,700	850,000
Prepaid expenses	92,400	89,250
Total current assets	$ 3,008,100	$2,135,370
Long-term investments	825,000	637,500
Property, plant, and equipment (net)	6,450,020	5,100,000
Total assets	$10,283,120	$7,872,870
Liabilities		
Current liabilities	$ 770,000	$ 726,750
Long-term liabilities:		
Mortgage note payable, 12%, due 2017	$ 1,200,000	$ 0
Bonds payable, 11%, due 2021	1,500,000	1,000,000
Total long-term liabilities	$ 2,700,000	$1,000,000
Total liabilities	$ 3,470,000	$1,726,750
Stockholders' Equity		
Preferred $2.00 stock, $100 par	$ 1,500,000	$1,500,000
Common stock, $5 par	3,000,000	3,000,000
Retained earnings	2,313,120	1,646,120
Total stockholders' equity	$ 6,813,120	$6,146,120
Total liabilities and stockholders' equity	$10,283,120	$7,872,870

Instructions

Determine the following measures for 2012, rounding to one decimal place:

1. Working capital
2. Current ratio
3. Quick ratio
4. Accounts receivable turnover
5. Number of days' sales in receivables
6. Inventory turnover
7. Number of days' sales in inventory
8. Ratio of fixed assets to long-term liabilities

9. Ratio of liabilities to stockholders' equity
10. Number of times interest charges earned
11. Number of times preferred dividends earned
12. Ratio of net sales to assets
13. Rate earned on total assets
14. Rate earned on stockholders' equity
15. Rate earned on common stockholders' equity
16. Earnings per share on common stock
17. Price-earnings ratio
18. Dividends per share of common stock
19. Dividend yield

OBJ. 2, 3

PR 17-5B Solvency and profitability trend analysis

Haviland Company has provided the following comparative information:

	2012	2011	2010	2009	2008
Net income	$ 2,785,860	$ 1,857,240	$1,386,000	$ 924,000	$ 700,000
Interest expense	736,442	624,103	538,020	427,000	350,000
Income tax expense	612,786	422,611	320,160	220,800	160,000
Total assets (ending balance)	16,321,384	12,554,911	9,511,296	6,993,600	5,640,000
Total stockholders' equity (ending balance)	9,653,100	6,867,240	5,010,000	3,624,000	2,700,000
Average total assets	14,438,147	11,033,103	8,252,448	6,316,800	4,820,000
Average stockholders' equity	8,260,170	5,938,620	4,317,000	3,162,000	2,350,000

You have been asked to evaluate the historical performance of the company over the last five years.

Selected industry ratios have remained relatively steady at the following levels for the last five years:

	2008–2012
Rate earned on total assets	18%
Rate earned on stockholders' equity	22%
Number of times interest charges earned	3.0
Ratio of liabilities to stockholders' equity	1.5

Instructions

1. Prepare four line graphs with the ratio on the vertical axis and the years on the horizontal axis for the following four ratios (rounded to one decimal place):
    a. Rate earned on total assets
    b. Rate earned on stockholders' equity
    c. Number of times interest charges earned
    d. Ratio of liabilities to stockholders' equity

    Display both the company ratio and the industry benchmark on each graph. That is, each graph should have two lines.
2. Prepare an analysis of the graphs in (1).

Nike, Inc., Problem

Financial Statement Analysis

The financial statements for Nike, Inc., are presented in Appendix C at the end of the text. The following additional information (in thousands) is available:

Accounts receivable at May 31, 2007	$ 2,795.3
Inventories at May 31, 2007	2,438.4
Total assets at May 31, 2007	12,442.7
Stockholders' equity at May 31, 2007	7,825.3

Instructions

1. Determine the following measures for the fiscal years ended May 31, 2010, and May 31, 2009, rounding to one decimal place.
   a. Working capital
   b. Current ratio
   c. Quick ratio
   d. Accounts receivable turnover
   e. Number of days' sales in receivables
   f. Inventory turnover
   g. Number of days' sales in inventory
   h. Ratio of liabilities to stockholders' equity
   i. Ratio of net sales to average total assets
   j. Rate earned on average total assets, assuming interest expense is $36.4 million for the year ending May 31, 2010, and $40.2 million for the year ending May 31, 2009
   k. Rate earned on average common stockholders' equity
   l. Price-earnings ratio, assuming that the market price was $57.05 per share on May 31, 2010, and $68.37 per share on May 31, 2009
   m. Percentage relationship of net income to net sales
2. What conclusions can be drawn from these analyses?

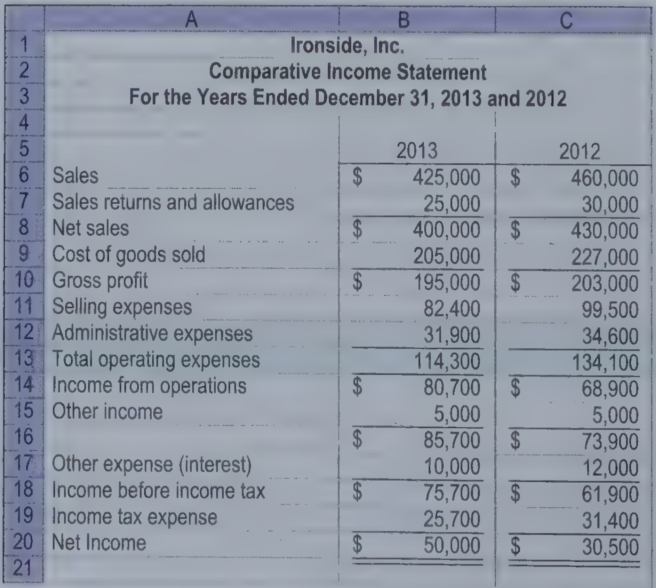
Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA 17-1 Horizontal analysis

The comparative income statement for Ironside, Inc., is provided below.



	A	B	C
1	Ironside, Inc.		
2	Comparative Income Statement		
3	For the Years Ended December 31, 2013 and 2012		
4			
5		2013	2012
6	Sales	$ 425,000	$ 460,000
7	Sales returns and allowances	25,000	30,000
8	Net sales	$ 400,000	$ 430,000
9	Cost of goods sold	205,000	227,000
10	Gross profit	$ 195,000	$ 203,000
11	Selling expenses	82,400	99,500
12	Administrative expenses	31,900	34,600
13	Total operating expenses	114,300	134,100
14	Income from operations	$ 80,700	$ 68,900
15	Other income	5,000	5,000
16		$ 85,700	$ 73,900
17	Other expense (interest)	10,000	12,000
18	Income before income tax	$ 75,700	$ 61,900
19	Income tax expense	25,700	31,400
20	Net Income	$ 50,000	$ 30,500
21			

a. Open the Excel file *SA17-1_2e.*

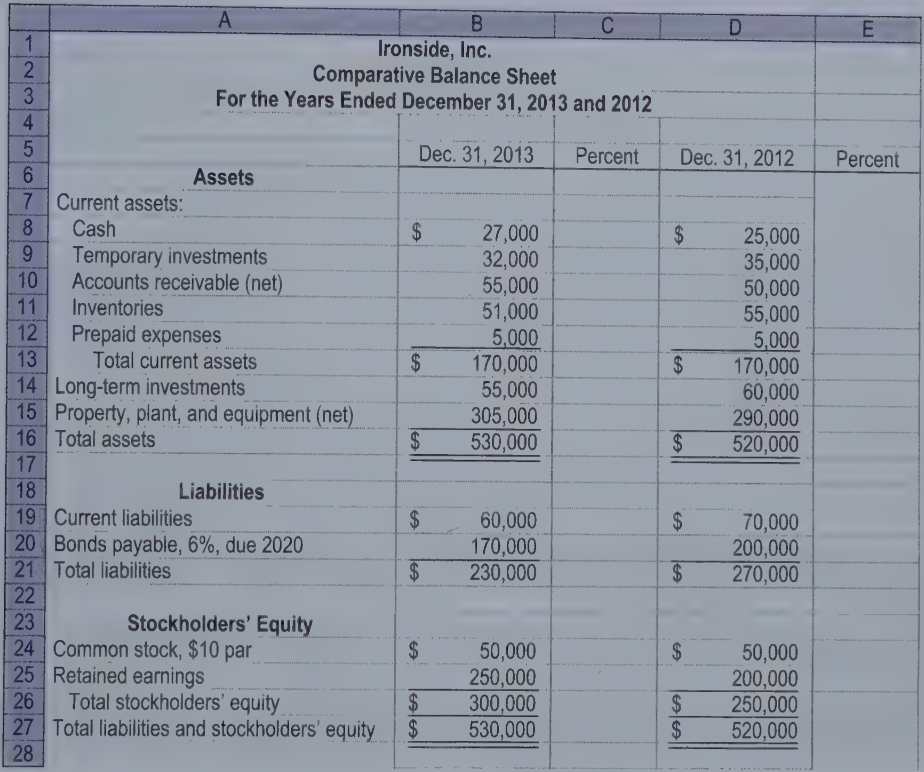
b. Prepare a horizontal analysis using 2012 as the base year. Round percentages to one tenth of a percent (for example, 10.47% rounds to 10.5%).

c. When you have completed the horizontal analysis, perform a "save as," replacing the entire file name with the following:

SA17-1_2e[your first name initial]_[your last name]

SA 17-2 Vertical analysis

The comparative balance sheet for Ironside, Inc., is provided below.



	A	B	C	D	E
1	**Ironside, Inc.**				
2	**Comparative Balance Sheet**				
3	**For the Years Ended December 31, 2013 and 2012**				
4					
5		Dec. 31, 2013	Percent	Dec. 31, 2012	Percent
6	**Assets**				
7	Current assets:				
8	Cash	$ 27,000		$ 25,000	
9	Temporary investments	32,000		35,000	
10	Accounts receivable (net)	55,000		50,000	
11	Inventories	51,000		55,000	
12	Prepaid expenses	5,000		5,000	
13	Total current assets	$ 170,000		$ 170,000	
14	Long-term investments	55,000		60,000	
15	Property, plant, and equipment (net)	305,000		290,000	
16	Total assets	$ 530,000		$ 520,000	
17					
18	**Liabilities**				
19	Current liabilities	$ 60,000		$ 70,000	
20	Bonds payable, 6%, due 2020	170,000		200,000	
21	Total liabilities	$ 230,000		$ 270,000	
22					
23	**Stockholders' Equity**				
24	Common stock, $10 par	$ 50,000		$ 50,000	
25	Retained earnings	250,000		200,000	
26	Total stockholders' equity	$ 300,000		$ 250,000	
27	Total liabilities and stockholders' equity	$ 530,000		$ 520,000	
28					

a. Open the Excel file *SA17-2_2e.*

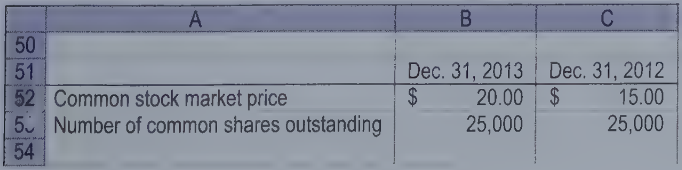
b. Prepare a vertical analysis for December 31, 2012 and 2013, balance sheets. Round percentages to one tenth of a percent (for example, 10.47% rounds to 10.5%).

c. When you have completed the vertical analysis, perform a "save as," replacing the entire file name with the following:

SA17-2_2e[your first name initial]_[your last name]

SA 17-3 Financial ratios

In addition to the financial statements in **SA 17-1** and **SA 17-2,** the following information is available for Ironside, Inc.



	A	B	C
50			
51		Dec. 31, 2013	Dec. 31, 2012
52	Common stock market price	$ 20.00	$ 15.00
53	Number of common shares outstanding	25,000	25,000
54			

a. Open the Excel file *SA17-3_2e.*

b. Using the financial statements for Ironside, Inc., in the file provided, determine the following ratios for 2013

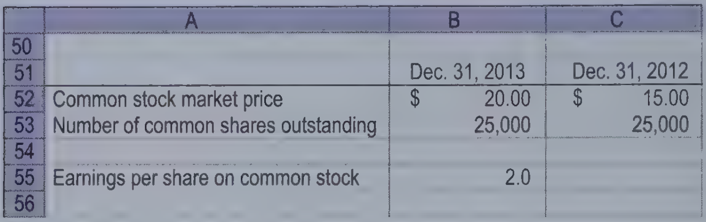
- Working capital
- Current ratio
- Inventory turnover
- Number of days' sales in inventory
- Ratio of fixed assets to long-term liabilities
- Number of times interest charges are earned
- Rate earned on total assets
- Earnings per share

c. When you have completed computing the ratios listed, perform a "save as," replacing the entire file name with the following:

SA17-3_2e[your first name initial]_[your last name]

SA 17-4 Financial ratios

In addition to the financial statements in SA 17-1 and SA 17-2, the following information is available for Ironside, Inc.



	A	B	C
50			
51		Dec. 31, 2013	Dec. 31, 2012
52	Common stock market price	$ 20.00	$ 15.00
53	Number of common shares outstanding	25,000	25,000
54			
55	Earnings per share on common stock	2.0	
56			

a. Open the Excel file *SA17-4_2e.*

b. Using the financial statements for Ironside, Inc., in the file provided, determine the following ratios for 2013:

- Quick ratio
- Accounts receivable turnover
- Number of days' sales in receivables
- Ratio of liabilities to stockholders' equity
- Ratio of net sales to assets
- Rate earned on common stockholders' equity
- Price-earnings ratio

c. When you have completed computing the ratios listed, perform a "save as," replacing the entire file name with the following:

SA17-4_2e[your first name initial]_[your last name]

CHAPTER

18

hoto/Greg Brown/Waterloo Courier

Managerial Accounting Concepts and Principles

Washburn Guitars

Paul Stanley, guitarist for the legendary rock band **KISS**, has entertained millions of fans playing his guitar. His guitar was built by quality craftsmen at **Washburn Guitars** in Chicago. Washburn Guitars is well-known in the music industry and has been in business for over 120 years.

Staying in business for 120 years requires a thorough understanding of how to manufacture high-quality guitars. In addition, it requires knowledge of how to account for the costs of making guitars. For example, Washburn needs cost information to answer the following questions:

How much should be charged for its guitars?

How many guitars does it have to sell in a year to cover its costs and earn a profit?

How many employees should the company have working on each stage of the manufacturing process?

How would purchasing automated equipment affect the costs of its guitars?

This chapter introduces managerial accounting concepts that are useful in addressing the preceding questions.

This chapter begins by describing managerial accounting and its relationship to financial accounting. Following this overview, the management process is described along with the role of managerial accounting in this process. Finally, characteristics of managerial accounting reports, managerial accounting terms, and uses of managerial accounting information are described and illustrated.

Learning Objectives

After studying this chapter, you should be able to:		*Example Exercises*	*Page*
OBJ. 1	Describe managerial accounting and the role of managerial accounting in a business. Managerial Accounting Differences Between Managerial and Financial Accounting The Management Accountant in the Organization Managerial Accounting in the Management Process	EE 18-1	842
OBJ. 2	Describe and illustrate the following costs: 1. direct and indirect costs 2. direct materials, direct labor, and factory overhead costs 3. product and period costs Manufacturing Operations: Costs and Terminology Direct and Indirect Costs Manufacturing Costs	EE 18-2, 3, 4	845, 846, 848
OBJ. 3	Describe and illustrate the following statements for a manufacturing business: 1. balance sheet 2. statement of cost of goods manufactured 3. income statement Financial Statements for a Manufacturing Business Balance Sheet for a Manufacturing Business Income Statement for a Manufacturing Company	EE 18-5	852
OBJ. 4	Describe the uses of managerial accounting information. Uses of Managerial Accounting		

At a Glance 18 Page 854

OBJ. 1 Describe managerial accounting and the role of managerial accounting in a business.

Managerial Accounting

Managers make numerous decisions during the day-to-day operations of a business and in planning for the future. Managerial accounting provides much of the information used for these decisions.

Some examples of managerial accounting information along with the chapter in which it is described and illustrated are listed below.

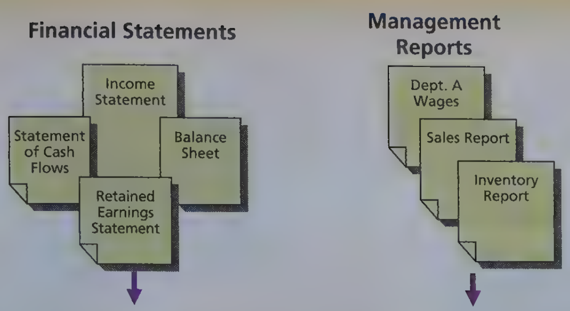
1. Classifying manufacturing and other costs and reporting them in the financial statements (Chapter 18)
2. Determining the cost of manufacturing a product or providing a service (Chapters 19 and 20)
3. Estimating the behavior of costs for various levels of activity and assessing cost-volume-profit relationships (Chapter 21)
4. Planning for the future by preparing budgets (Chapter 22)
5. Evaluating manufacturing costs by comparing actual with expected results (Chapter 23)
6. Evaluating decentralized operations by comparing actual and budgeted costs as well as computing various measures of profitability (Chapter 24)
7. Evaluating special decision-making situations by comparing differential revenues and costs, and allocating product costs using activity-based costing (Chapter 25)
8. Evaluating alternative proposals for long-term investments in fixed assets (Chapter 26)

Differences Between Managerial and Financial Accounting

Accounting information is often divided into two types: financial and managerial. Exhibit 1 shows the relationship between financial accounting and managerial accounting.

EXHIBIT 1

Financial Accounting and Managerial Accounting



	External Users & Company Management	Management
Nature of Information	Objective	Objective and subjective
Guidelines for Preparation	Prepared according to GAAP	Prepared according to management needs
Timeliness of Reporting	Prepared at fixed intervals	Prepared at fixed intervals and on an as-needed basis
Focus of Reporting	Company as a whole	Company as a whole or segment

Financial accounting information is reported at fixed intervals (monthly, quarterly, yearly) in general-purpose financial statements. These financial statements—the income statement, retained earnings statement, balance sheet, and statement of cash flows—are prepared according to generally accepted accounting principles (GAAP). These statements are used by external users such as the following:

1. Shareholders
2. Creditors
3. Government agencies
4. The general public

Managers of a company also use general-purpose financial statements. For example, in planning future operations, managers often begin by evaluating the current income statement and statement of cash flows.

Managerial accounting information is designed to meet the specific needs of a company's management. This information includes the following:

1. Historical data, which provide *objective measures* of past operations
2. Estimated data, which provide *subjective estimates* about future decisions

Management uses both types of information in directing daily operations, planning future operations, and developing business strategies.

Unlike the financial statements prepared in financial accounting, managerial accounting reports do *not* always have to be:

1. Prepared according to generally accepted accounting principles (GAAP). This is because *only* the company's management uses the information. Also, in many cases, GAAP are not relevant to the specific decision-making needs of management.
2. Prepared at fixed intervals (monthly, quarterly, yearly). Although some management reports are prepared at fixed intervals, most reports are prepared as management needs the information.
3. Prepared for the business as a whole. Most management reports are prepared for products, projects, sales territories, or other segments of the company.

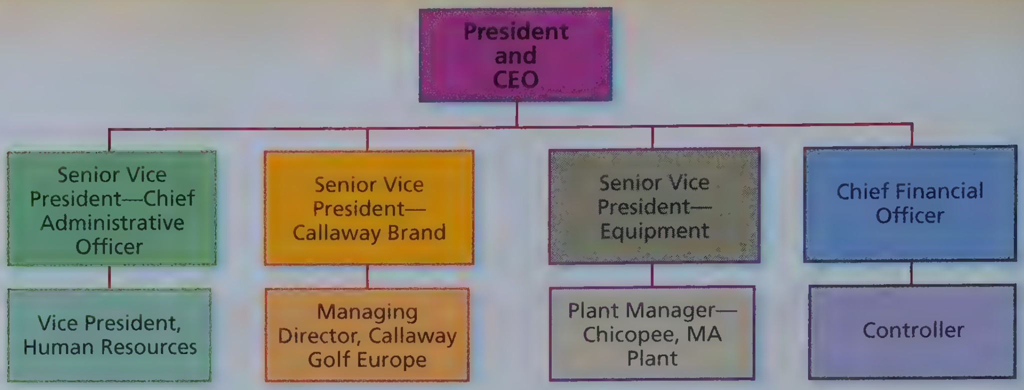
The Management Accountant in the Organization

In most companies, departments or similar organizational units are assigned responsibilities for specific functions or activities. The operating structure of a company can be shown in an *organization chart*.

Exhibit 2 is a partial organization chart for Callaway Golf Company, the manufacturer and distributor of golf clubs, clothing, and other products.

EXHIBIT 2

Partial Organization Chart for Callaway Golf Company



The departments in a company can be viewed as having either of the following:

1. Line responsibilities
2. Staff responsibilities

A **line department** is directly involved in providing goods or services to the customers of the company. For Callaway Golf (shown in Exhibit 2), the following occupy line positions:

1. Senior Vice President—Equipment
2. Plant Manager—Chicopee, MA Plant
3. Senior Vice President—Callaway Brand
4. Managing Director, Callaway Golf Europe

The preceding occupy line positions because they are responsible for manufacturing and selling Callaway's products.

A **staff department** provides services, assistance, and advice to the departments with line or other staff responsibilities. A staff department has no direct authority over a line department. For Callaway Golf (Exhibit 2), these occupy staff positions:

1. Senior VP—Chief Administrative Officer
2. Vice President, Human Resources
3. Chief Financial Officer
4. Controller

The terms *line* and *staff* may be applied to service organizations. For example, the line positions in a hospital would be the nurses, doctors, and other caregivers. Staff positions would include admissions and records.

As shown above, the chief financial officer (CFO) and the controller occupy staff positions. In most companies, the **controller** is the chief management accountant. The controller's staff consists of a variety of other accountants who are responsible for specialized accounting functions such as the following:

1. Systems and procedures
2. General accounting
3. Budgets and budget analysis
4. Special reports and analysis
5. Taxes
6. Cost accounting

Experience in managerial accounting is often an excellent training ground for senior management positions. This is not surprising, since accounting touches all phases of a company's operations.

Managerial Accounting in the Management Process

As a staff department, managerial accounting supports management and the management process. The **management process** has the following five basic phases as shown in Exhibit 3.

1. Planning
2. Directing
3. Controlling
4. Improving
5. Decision making

As Exhibit 3 illustrates, the five phases interact with one another.

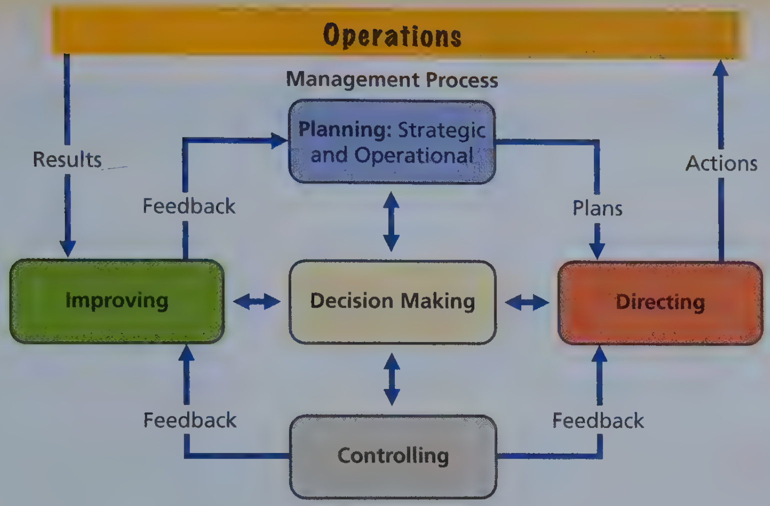


EXHIBIT 3

The Management Process

Planning Management uses **planning** in developing the company's **objectives (goals)** and translating these objectives into courses of action. For example, a company may set an objective to increase market share by 15% by introducing three new products. The actions to achieve this objective might be as follows:

1. Increase the advertising budget
2. Open a new sales territory
3. Increase the research and development budget

Planning may be classified as follows:

1. **Strategic planning**, which is developing long-term actions to achieve the company's objectives. These long-term actions are called **strategies**, which often involve periods of 5 to 10 years.
2. **Operational planning**, which develops short-term actions for managing the day-to-day operations of the company.

Directing The process by which managers run day-to-day operations is called **directing.** An example of directing is a production supervisor's efforts to keep the production line moving without interruption (downtime). A credit manager's development of guidelines for assessing the ability of potential customers to pay their bills is also an example of directing.

Controlling Monitoring operating results and comparing actual results with the expected results is **controlling.** This **feedback** allows management to isolate areas for further investigation and possible remedial action. It may also lead to revising future plans. This philosophy of controlling by comparing actual and expected results is called **management by exception**.

Improving Feedback is also used by managers to support continuous process improvement. **Continuous process improvement** is the philosophy of continually improving employees, business processes, and products. The objective of continuous improvement is to eliminate the *source* of problems in a process. In this way, the right products (services) are delivered in the right quantities at the right time.

Decision Making Inherent in each of the preceding management processes is **decision making.** In managing a company, management must continually decide among alternative actions. For example, in directing operations, managers must decide on an operating structure, training procedures, and staffing of day-to-day operations.

Managerial accounting supports managers in all phases of the management process. For example, accounting reports comparing actual and expected operating results help managers plan and improve current operations. Such a report might compare the actual and expected costs of defective materials. If the cost of defective materials is unusually high, management might decide to change suppliers.

Example Exercise 18-1 Management Process

OBJ. 1

Three phases of the management process are planning, controlling, and improving. Match the following descriptions to the proper phase:

Phase of management process	**Description**
Planning	a. Monitoring the operating results of implemented plans and comparing the actual results with expected results.
Controlling	b. Rejects solving individual problems with temporary solutions that fail to address the root cause of the problem.
Improving	c. Used by management to develop the company's objectives.

Follow My Example 18-1

Phase of management process

Planning (c)
Controlling (a)
Improving (b)

Practice Exercises: **PE 18-1A, PE 18-1B**

Integrity, Objectivity, and Ethics in Business

ENVIRONMENTAL ACCOUNTING

In recent years, multinational agreements such as the Kyoto Accord have raised public awareness of environmental issues and introduced guidelines for reducing the effect that businesses have on the environment. As a result, managers must now consider the environmental impact of their business decisions in the same way that they would consider other operational issues. To help managers make environmentally conscious decisions, the emerging field of environmental management accounting focuses on calculating the environmental-related costs of business decisions. Environmental managerial accountants evaluate a variety of issues such as the volume and level of emissions, the estimated costs of different levels of emissions, and the impact that environmental costs have on product cost. Managers can then use the results of these analyses to clearly consider the environmental effects of their business decisions.

OBJ. 2 Describe and illustrate the following costs:

1. direct and indirect costs
2. direct materials, direct labor, and factory overhead costs
3. product and period costs

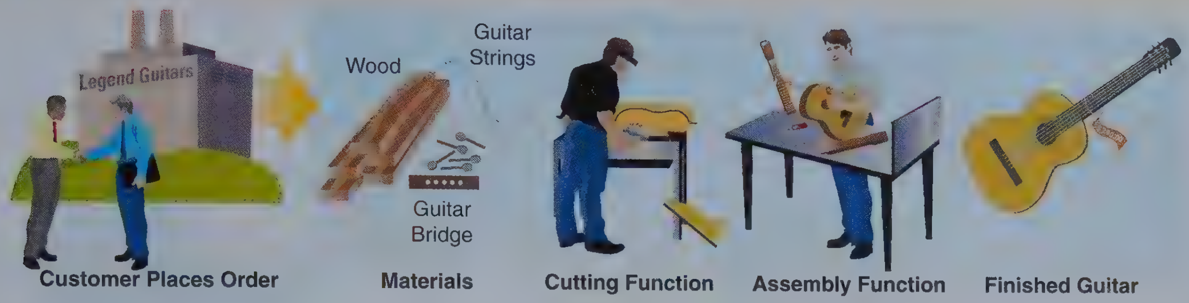
Manufacturing Operations: Costs and Terminology

The operations of a business can be classified as service, merchandising, or manufacturing. The accounting for service and merchandising businesses has been described and illustrated in earlier chapters. For this reason, the remaining chapters of this text focus primarily on manufacturing businesses. Most of the managerial accounting concepts discussed, however, also apply to service and merchandising businesses.

As a basis for illustration of manufacturing operations, a guitar manufacturer, Legend Guitars, is used. Exhibit 4 is an overview of Legend's guitar manufacturing operations.

Legend's guitar making process begins when a customer places an order for a guitar. Once the order is accepted, the manufacturing process begins by obtaining the

EXHIBIT 4 Guitar Making Operations of Legend Guitars



necessary materials. An employee then cuts the body and neck of the guitar out of raw lumber. Once the wood is cut, the body and neck of the guitar are assembled. When the assembly is complete, the guitar is painted and finished.

Direct and Indirect Costs

A **cost** is a payment of cash or the commitment to pay cash in the future for the purpose of generating revenues. For example, cash (or credit) used to purchase equipment is the cost of the equipment. If equipment is purchased by exchanging assets other than cash, the current market value of the assets given up is the cost of the equipment purchased.

In managerial accounting, costs are classified according to the decision-making needs of management. For example, costs are often classified by their relationship to a segment of operations, called a **cost object**. A cost object may be a product, a sales territory, a department, or an activity, such as research and development. Costs identified with cost objects are either direct costs or indirect costs.

Direct costs are identified with and can be traced to a cost object. For example, the cost of wood (materials) used by Legend Guitars in manufacturing a guitar is a direct cost of the guitar.

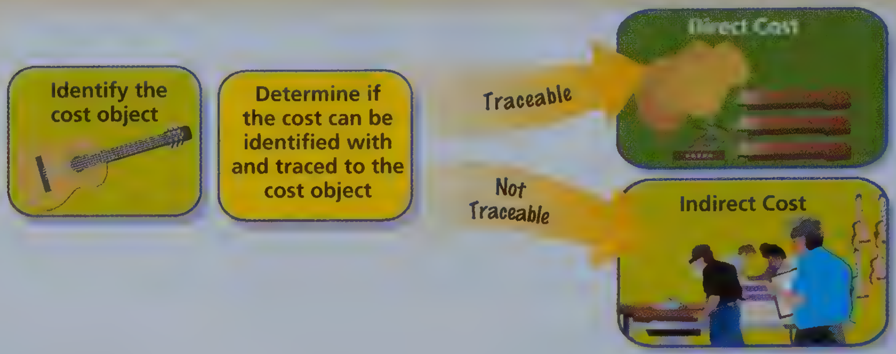
Indirect costs cannot be identified with or traced to a cost object. For example, the salaries of the Legend Guitars production supervisors are indirect costs of producing a guitar. While the production supervisors contribute to the production of a guitar, their salaries cannot be identified with or traced to any individual guitar.

Depending on the cost object, a cost may be either a direct or an indirect cost. For example, the salaries of production supervisors are indirect costs when the cost object is an individual guitar. If, however, the cost object is Legend Guitars' overall production process, then the salaries of production supervisors are direct costs.

This process of classifying a cost as direct or indirect is illustrated in Exhibit 5.

EXHIBIT 5

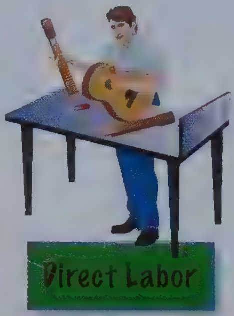
Classifying Direct and Indirect Costs



Manufacturing Costs

The cost of a manufactured product includes the cost of materials used in making the product. In addition, the cost of a manufactured product includes the cost of converting the materials into a finished product. For example, Legend Guitars uses employees and machines to convert wood (and other supplies) into finished guitars. Thus, the cost of a finished guitar (the cost object) includes the following:

1. Direct materials cost
2. Direct labor cost
3. Factory overhead cost



Direct Materials Cost Manufactured products begin with raw materials that are converted into finished products. The cost of any material that is an integral part of the finished product is classified as a **direct materials cost**. For Legend Guitars, direct materials cost includes the cost of the wood used in producing each guitar. Other examples of direct materials costs include the cost of electronic components for a television, silicon wafers for microcomputer chips, and tires for an automobile.

To be classified as a direct materials cost, the cost must be *both* of the following:

1. An integral part of the finished product
2. A significant portion of the total cost of the product

For Legend Guitars, the cost of the guitar strings is not a direct materials cost. This is because the cost of guitar strings is an insignificant part of the total cost of each guitar. Instead, the cost of guitar string is classified as a factory overhead cost, which is discussed later.

Direct Labor Cost Most manufacturing processes use employees to convert materials into finished products. The cost of employee wages that is an integral part of the finished

product is classified as **direct labor cost**. For Legend Guitars, direct labor cost includes the wages of the employees who cut each guitar out of raw lumber and assemble it. Other examples of direct labor costs include mechanics' wages for repairing an automobile, machine operators' wages for manufacturing tools, and assemblers' wages for assembling a laptop computer.

Like a direct materials cost, a direct labor cost must meet *both* of the following criteria:

1. An integral part of the finished product
2. A significant portion of the total cost of the product

For Legend Guitars, the wages of the janitors who clean the factory are not a direct labor cost. This is because janitorial costs are not an integral part or a significant cost of each guitar. Instead, janitorial costs are classified as a factory overhead cost, which is discussed next.

Factory Overhead Cost Costs other than direct materials cost and direct labor cost that are incurred in the manufacturing process are combined and classified as **factory overhead cost**. Factory overhead is sometimes called **manufacturing overhead** or **factory burden.**

All factory overhead costs are indirect costs of the product. Some factory overhead costs include the following:

1. Heating and lighting the factory
2. Repairing and maintaining factory equipment
3. Property taxes on factory buildings and land
4. Insurance on factory buildings
5. Depreciation on factory plant and equipment

Factory overhead cost also includes materials and labor costs that do not enter directly into the finished product. Examples include the cost of oil used to lubricate machinery and the wages of janitorial and supervisory employees. Also, if the costs of direct materials or direct labor are not a significant portion of the total product cost, these costs may be classified as factory overhead costs.

For Legend Guitars, the costs of guitar strings and janitorial wages are factory overhead costs. Additional factory overhead costs of making guitars are as follows:

1. Sandpaper
2. Buffing compound
3. Glue
4. Power (electricity) to run the machines
5. Depreciation of the machines and building
6. Salaries of production supervisors

As manufacturing processes have become more automated, direct labor costs have become so small that in some situations they are included as part of factory overhead.

Example Exercise 18-2 Direct Materials, Direct Labor, and Factory Overhead

2

Identify the following costs as direct materials (DM), direct labor (DL), or factory overhead (FO) for a baseball glove manufacturer.

a. Leather used to make a baseball glove
b. Coolants for machines that sew baseball gloves
c. Wages of assembly line employees
d. Ink used to print a player's autograph on a baseball glove

Follow My Example 18-2

a. DM
b. FO
c. DL
d. FO

Practice Exercises: **PE 18-2A, PE 18-2B**

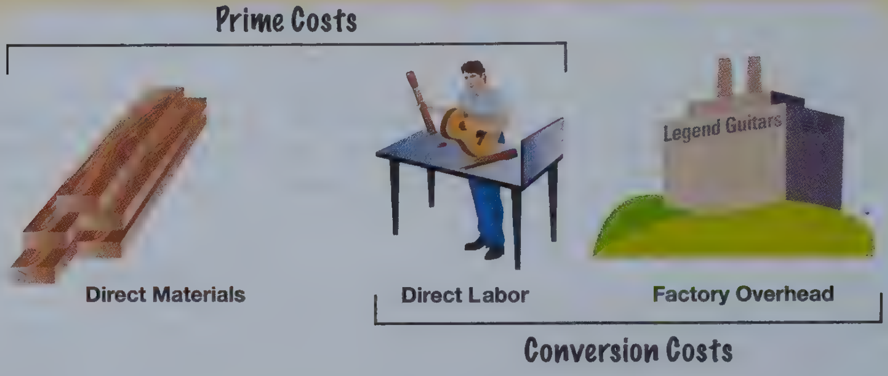
Prime Costs and Conversion Costs Direct materials, direct labor, and factory overhead costs may be grouped together for analysis and reporting. Two such common groupings are as follows:

1. **Prime costs**, which consist of direct materials and direct labor costs
2. **Conversion costs**, which consist of direct labor and factory overhead costs

Conversion costs are the costs of converting the materials into a finished product. Direct labor is both a prime cost and a conversion cost, as shown in Exhibit 6.

EXHIBIT 6

Prime Costs and Conversion Costs



Example Exercise 18-3 Prime and Conversion Costs

OBJ. 2

Identify the following costs as a prime cost (P), conversion cost (C), or both (B) for a baseball glove manufacturer.

a. Leather used to make a baseball glove
b. Coolants for machines that sew baseball gloves
c. Wages of assembly line employees
d. Ink used to print a player's autograph on a baseball glove

Follow My Example 18-3

a. P
b. C
c. B
d. C

Practice Exercises: **PE 18-3A, PE 18-3B**

Product Costs and Period Costs For financial reporting purposes, costs are classified as product costs or period costs.

1. **Product costs** consist of manufacturing costs: direct materials, direct labor, and factory overhead.
2. **Period costs** consist of selling and administrative expenses. *Selling expenses* are incurred in marketing the product and delivering the product to customers. *Administrative expenses* are incurred in managing the company and are not directly related to the manufacturing or selling functions.

Examples of product costs and period costs for Legend Guitars are presented in Exhibit 7.

EXHIBIT 7 Examples of Product Costs and Period Costs—Legend Guitars

Product (Manufacturing) Costs

Direct Materials Cost
Wood used in neck and body

Direct Labor Cost
Wages of saw operator
Wages of employees who assemble the guitar

Factory Overhead
Guitar strings
Wages of janitor
Power to run the machines
Depreciation expense—factory building
Sandpaper and buffing materials
Glue used in assembly of the guitar
Salary of production supervisors

Period (Nonmanufacturing) Costs

Selling Expenses
Advertising expenses
Sales salaries expenses
Commissions expenses

Administrative Expenses
Office salaries expense
Office supplies expense
Depreciation expense—office building and equipment

To facilitate control, selling and administrative expenses may be reported by level of responsibility. For example, selling expenses may be reported by products, salespersons, departments, divisions, or territories. Likewise, administrative expenses may be reported by areas such as human resources, computer services, legal, accounting, or finance.

The impact on the financial statements of product and period costs is summarized in Exhibit 8. As product costs are incurred, they are recorded and reported on the balance sheet as *inventory*. When the inventory is sold, the cost of the manufactured product sold is reported as *cost of goods sold* on the income statement. Period costs are reported as *expenses* on the income statement in the period in which they are incurred and, thus, never appear on the balance sheet.

Note:
Product costs consist of direct materials, direct labor, and factory overhead costs.

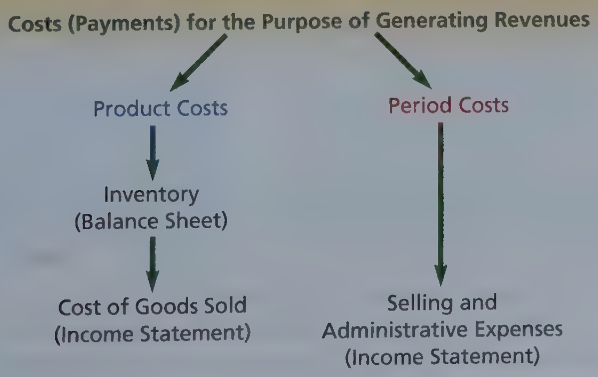


EXHIBIT 8
Product Costs, Period Costs, and the Financial Statements

Example Exercise 18-4 Product and Period Costs

OBJ 2

Identify the following costs as a product cost or a period cost for a baseball glove manufacturer.

a. Leather used to make a baseball glove
b. Cost of endorsement from a professional baseball player
c. Office supplies used at the company headquarters
d. Ink used to print a player's autograph on the baseball glove

Follow My Example 18-4

a. Product cost
b. Period cost
c. Period cost
d. Product cost

Practice Exercises: **PE 18-4A, PE 18-4B**

BusinessConnection

BUILD-TO-ORDER

Dell Inc. manufactures computers based on specific customer orders. In this build-to-order manufacturing process, customers select the exact features they want before the computer is built. Once the order is placed, the parts required for each feature are removed from inventory, which initiates the manufacturing process. Inventory items are scanned as they are removed from inventory to keep track of inventory levels and help the manufacturer determine when to reorder. This efficient process allows Dell to manufacture and ship the computer within days of the order being placed and has helped the company become one of the largest computer manufacturers in the world.

OBJ 3 Describe and illustrate the following statements for a manufacturing business:
1. balance sheet
2. statement of cost of goods manufactured
3. income statement

Financial Statements for a Manufacturing Business

The retained earnings and cash flow statements for a manufacturing business are similar to those illustrated in earlier chapters for service and merchandising businesses. However, the balance sheet and income statement for a manufacturing business are more complex. This is because a manufacturer makes the products that it sells and, thus, must record and report product costs. The reporting of product costs primarily affects the balance sheet and the income statement.

Balance Sheet for a Manufacturing Business

A manufacturing business reports three types of inventory on its balance sheet as follows:

1. **Materials inventory** (sometimes called raw materials inventory). This inventory consists of the costs of the direct and indirect materials that have not entered the manufacturing process.

   Examples for Legend Guitars: Wood, guitar strings, glue, sandpaper

2. **Work in process inventory**. This inventory consists of the direct materials, direct labor, and factory overhead costs for products that have entered the manufacturing process, but are not yet completed (in process).

   Example for Legend Guitars: Unfinished (partially assembled) guitars

3. **Finished goods inventory**. This inventory consists of completed (or finished) products that have not been sold.

   Example for Legend Guitars: Unsold guitars

Exhibit 9 illustrates the reporting of inventory on the balance sheet for a merchandising and a manufacturing business. MusicLand Stores, Inc., a retailer of musical instruments, reports only *Merchandise Inventory*. In contrast, Legend Guitars, a manufacturer of guitars, reports *Finished Goods*, *Work in Process*, and *Materials* inventories. In both balance sheets, inventory is reported in the *Current Assets* section.

EXHIBIT 9

Balance Sheet Presentation of Inventory in Manufacturing and Merchandising Companies

MusicLand Stores, Inc.
Balance Sheet
December 31, 2012

Current assets:	
Cash	$ 25,000
Accounts receivable (net)	85,000
Merchandise inventory	**142,000**
Supplies	10,000
Total current assets	$ 262,000

Legend Guitars
Balance Sheet
December 31, 2012

Current assets:		
Cash		$ 21,000
Accounts receivable (net)		120,000
Inventories:		
Finished goods	**$62,500**	
Work in process	**24,000**	
Materials	**35,000**	**121,500**
Supplies		2,000
Total current assets		$ 264,500

Income Statement for a Manufacturing Company

The income statements for merchandising and manufacturing businesses differ primarily in the reporting of the cost of merchandise (goods) *available for sale* and *sold* during the period. These differences are shown below.

Merchandising Business

Sales		$XXX
Beginning merchandise inventory	$XXX	
Plus net purchases	XXX	
Merchandise available for sale	$XXX	
Less ending merchandise inventory	XXX	
Cost of merchandise sold		XXX
Gross profit		$XXX

Manufacturing Business

Sales		$XXX
Beginning finished goods inventory	$XXX	
Plus **cost of goods manufactured**	XXX	
Cost of finished goods available for sale	$XXX	
Less ending finished goods inventory	XXX	
Cost of goods sold		XXX
Gross profit		$XXX

A merchandising business purchases merchandise ready for resale to customers. The total cost of the **merchandise available for sale** during the period is determined by adding the beginning merchandise inventory to the net purchases. The **cost of merchandise sold** is determined by subtracting the ending merchandise inventory from the cost of merchandise available for sale.

A manufacturer makes the products it sells, using direct materials, direct labor, and factory overhead. The total cost of making products that are available for sale during the period is called the **cost of goods manufactured**. The **cost of finished goods available** for sale is determined by adding the beginning finished goods inventory to the cost of goods manufactured during the period. The **cost of goods sold** is determined by subtracting the ending finished goods inventory from the cost of finished goods available for sale.

Cost of goods manufactured is required to determine the *cost of goods sold* and, thus to prepare the income statement. The cost of goods manufactured is often determined by preparing a **statement of cost of goods manufactured.**[1] This statement summarizes the cost of goods manufactured during the period as shown below.

Statement of Cost of Goods Manufactured

Beginning work in process inventory			$XXX
Direct materials:			
Beginning materials inventory	$XXX		
Purchases	XXX		
Cost of materials available for use	$XXX		
Less ending materials inventory	XXX		
Cost of direct materials used		$XXX	
Direct labor		XXX	
Factory overhead		XXX	
Total manufacturing costs incurred			XXX
Total manufacturing costs			$XXX
Less ending work in process inventory			XXX
Cost of goods manufactured			$XXX

To illustrate, the following data for Legend Guitars are used:

	Jan. 1, 2012	Dec. 31, 2012
Inventories:		
Materials	$ 65,000	$ 35,000
Work in process	30,000	24,000
Finished goods	60,000	62,500
Total inventories	$155,000	$121,500
Manufacturing costs incurred during 2012:		
Materials purchased		$100,000
Direct labor		110,000
Factory overhead:		
Indirect labor	$ 24,000	
Depreciation on factory equipment	10,000	
Factory supplies and utility costs	10,000	44,000
Total		$254,000
Sales		$366,000
Selling expenses		20,000
Administrative expenses		15,000

The statement of cost of goods manufactured is prepared using the following three steps:

Step 1. Determine the *cost of materials used.*
Step 2. Determine the *total manufacturing costs incurred.*
Step 3. Determine the *cost of goods manufactured.*

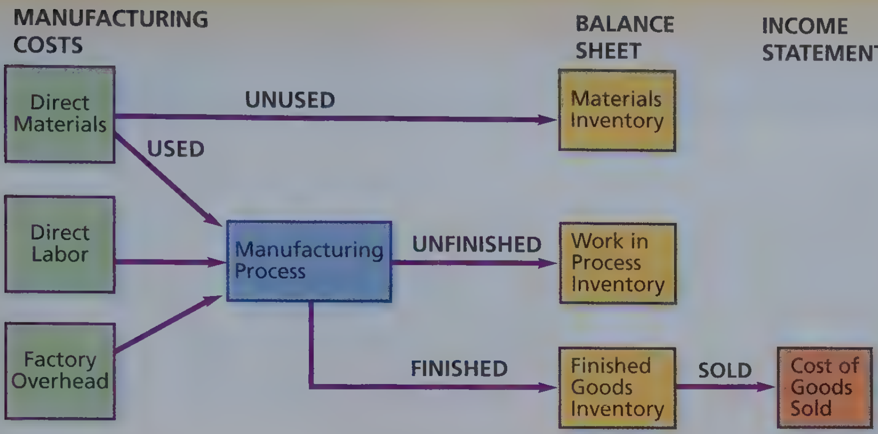
---

[1] Chapters 19 and 20 describe and illustrate the use of job order and process cost systems. As will be discussed, these systems do not require a statement of cost of goods manufactured.

Exhibit 10 summarizes how manufacturing costs flow to the income statement and balance sheet of a manufacturing business.

EXHIBIT 10

Flow of Manufacturing Costs



Using the data for Legend Guitars, the steps for determining the cost of materials used, total manufacturing costs incurred, and cost of goods manufactured are shown below.

Step 1. The *cost of materials used* in production is determined as follows:

Materials inventory, January 1, 2012	$ 65,000
Add materials purchased	100,000
Cost of materials available for use	$ 165,000
Less materials inventory, December 31, 2012	35,000
Cost of direct materials used	$130,000

The January 1, 2012 (beginning), materials inventory of $65,000 is added to the cost of materials purchased of $100,000 to yield the total cost of materials that are available for use during 2012 of $165,000. Deducting the December 31, 2012 (ending), materials inventory of $35,000 yields the cost of direct materials used in production of $130,000.

Step 2. The *total manufacturing costs incurred* is determined as follows:

Direct materials used in production (Step 1)	$ 130,000
Direct labor	110,000
Factory overhead	44,000
Total manufacturing costs incurred	$284,000

The total manufacturing costs incurred in 2012 of $284,000 are determined by adding the direct materials used in production (Step 1), the direct labor cost, and the factory overhead costs.

Step 3. The *cost of goods manufactured* is determined as follows:

Work in process inventory, January 1, 2012	$ 30,000
Total manufacturing costs incurred (Step 2)	284,000
Total manufacturing costs	$ 314,000
Less work in process inventory, December 31, 2012	24,000
Cost of goods manufactured	$290,000

The cost of goods manufactured of $290,000 is determined by adding the total manufacturing costs incurred (Step 2) to the January 1, 2012 (beginning), work in process inventory of $30,000. This yields total manufacturing costs of $314,000. The December 31, 2012 (ending), work in process of $24,000 is then deducted to determine the cost of goods manufactured of $290,000.

The income statement and statement of cost of goods manufactured for Legend Guitars is shown in Exhibit 11.

EXHIBIT 11

Manufacturing Company—Income Statement with Statement of Cost of Goods Manufactured

Legend Guitars
Income Statement
For the Year Ended December 31, 2012

Sales		$366,000
Cost of goods sold:		
Finished goods inventory, January 1, 2012	$ 60,000	
Cost of goods manufactured	290,000	
Cost of finished goods available for sale	$350,000	
Less finished goods inventory, December 31, 2012	62,500	
Cost of goods sold		287,500
Gross profit		$ 78,500
Operating expenses:		
Selling expenses	$ 20,000	
Administrative expenses	15,000	
Total operating expenses		35,000
Net income		$ 43,500

Legend Guitars
Statement of Cost of Goods Manufactured
For the Year Ended December 31, 2012

Work in process inventory, January 1, 2012			$ 30,000
Direct materials:			
Materials inventory, January 1, 2012	$ 65,000		
Purchases	100,000		
Cost of materials available for use	$165,000		
Less materials inventory, December 31, 2012	35,000		
Cost of direct materials used		$130,000	
Direct labor		110,000	
Factory overhead:			
Indirect labor	$ 24,000		
Depreciation on factory equipment	10,000		
Factory supplies and utility costs	10,000		
Total factory overhead		44,000	
Total manufacturing costs incurred			284,000
Total manufacturing costs			$314,000
Less work in process inventory, December 31, 2012			24,000
Cost of goods manufactured			$290,000

Example Exercise 18-5 Cost of Goods Sold, Cost of Goods Manufactured

OBJ 3

Gauntlet Company has the following information for January:

Cost of direct materials used in production	$25,000
Direct labor	35,000
Factory overhead	20,000
Work in process inventory, January 1	30,000
Work in process inventory, January 31	25,000
Finished goods inventory, January 1	15,000
Finished goods inventory, January 31	12,000

For January, determine (a) the cost of goods manufactured and (b) the cost of goods sold.

(continued)

Follow My Example 18-5

a.

Work in process inventory, January 1		$ 30,000
Cost of direct materials used in production	$ 25,000	
Direct labor	35,000	
Factory overhead	20,000	
Total manufacturing costs incurred during January		80,000
Total manufacturing costs		$110,000
Less work in process inventory, January 31		25,000
Cost of goods manufactured		$ 85,000

b.

Finished goods inventory, January 1	$ 15,000
Cost of goods manufactured	85,000
Cost of finished goods available for sale	$100,000
Less finished goods inventory, January 31	12,000
Cost of goods sold	$ 88,000

Practice Exercises: **PE 18-5A, PE 18-5B**

Uses of Managerial Accounting

OBJ. 4 Describe the uses of managerial accounting information.

As mentioned earlier, managerial accounting provides information and reports for managers to use in operating a business. Some examples of how managerial accounting could be used by Legend Guitars include the following:

1. The cost of manufacturing each guitar could be used to determine its selling price.
2. Comparing the costs of guitars over time can be used to monitor and control the cost of direct materials, direct labor, and factory overhead.
3. Performance reports could be used to identify any large amounts of scrap or employee downtime. For example, large amounts of unusable wood (scrap) after the cutting process should be investigated to determine the underlying cause. Such scrap may be caused by saws that have not been properly maintained.
4. A report could analyze the potential efficiencies and dollar savings of purchasing a new computerized saw to speed up the production process.
5. A report could analyze how many guitars need to be sold to cover operating costs and expenses. Such information could be used to set monthly selling targets and bonuses for sales personnel.

As the prior examples illustrate, managerial accounting information can be used for a variety of purposes. In the remaining chapters of this text, we examine these and other areas of managerial accounting.

Business Connection

OVERHEAD COSTS

Defense contractors such as **General Dynamics**, **Boeing**, and **Lockheed Martin** sell products that include airplanes, ships, and military equipment to the U.S. Department of Defense. Building large products such as these requires a significant investment in facilities and tools, all of which are classified as factory overhead costs. As a result, factory overhead costs are a much larger portion of cost of goods sold for defense contractors than it is in other industries. For example, a U.S. General Accounting Office study of six defense contractors found that overhead costs were almost one-third of the price of the final product. This is over three times greater than the factory overhead costs for a laptop computer, which are typically about 10% of the price of the final product.

At a Glance 18

OBJ. 1 Describe managerial accounting and the role of managerial accounting in a business.

Key Points Managerial accounting is a staff function that supports the management process by providing reports to aid management in planning, directing, controlling, improving, and decision making. This differs from financial accounting, which provides information to users outside of the organization. Managerial accounting reports are designed to meet the specific needs of management and aid management in planning long-term strategies and running the day-to-day operations.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the differences between financial accounting and managerial accounting.		
• Describe the role of the management accountant in the organization.		
• Describe the role of managerial accounting in the management process.	EE18-1	PE18-1A, 18-1B

OBJ. 2 Describe and illustrate the following costs: (1) direct and indirect costs; (2) direct materials, direct labor, and factory overhead costs; and (3) product and period costs.

Key Points Manufacturing companies use machinery and labor to convert materials into a finished product. A direct cost can be directly traced to a finished product, while an indirect cost cannot. The cost of a finished product is made up of three components: (1) direct materials, (2) direct labor, and (3) factory overhead.

These three manufacturing costs can be categorized into prime costs (direct materials and direct labor) or conversion costs (direct labor and factory overhead). Product costs consist of the elements of manufacturing cost—direct materials, direct labor, and factory overhead—while period costs consist of selling and administrative expenses.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe a cost object.		
• Classify a cost as a direct or an indirect cost for a cost object.		
• Describe direct materials cost.	EE18-2	PE18-2A, 18-2B
• Describe direct labor cost.	EE18-2	PE18-2A, 18-2B
• Describe factory overhead cost.	EE18-2	PE18-2A, 18-2B
• Describe prime costs and conversion costs.	EE18-3	PE18-3A, 18-3B
• Describe product costs and period costs.	EE18-4	PE18-4A, 18-4B

OBJ. 3 Describe and illustrate the following statements for a manufacturing business: (1) balance sheet, (2) statement of cost of goods manufactured, and (3) income statement.

Key Points The financial statements of manufacturing companies differ from those of merchandising companies. Manufacturing company balance sheets report three types of inventory: materials, work in process, and finished goods. The income statement of manufacturing companies reports cost of goods sold, which is the total manufacturing cost of the goods sold. The income statement is supported by the statement of cost of goods manufactured, which provides the details of the cost of goods manufactured during the period.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe materials inventory.		
• Describe work in process inventory.		
• Describe finished goods inventory.		
• Describe the differences between merchandising and manufacturing company balance sheets.		
• Prepare a statement of cost of goods manufactured.	EE18-5	PE18-5A, 18-5B
• Prepare an income statement for a manufacturing company.	EE18-5	PE18-5A, 18-5B

OBJ. 4 Describe the uses of managerial accounting information.

Key Points Managers need information to guide their decision making. Managerial accounting provides a variety of information and reports that help managers run the operations of their business.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe examples of how managerial accounting aids managers in decision making.		

Key Terms

continuous process improvement (841)
controller (840)
controlling (841)
conversion costs (846)
cost (843)
cost object (843)
cost of finished goods available (850)
cost of goods manufactured (850)
cost of goods sold (850)
cost of merchandise sold (849)
decision making (841)
direct costs (843)
direct labor cost (845)
direct materials cost (844)
directing (841)
factory burden (845)
factory overhead cost (845)
feedback (841)
financial accounting (839)
finished goods inventory (848)
indirect costs (843)
line department (840)
management by exception (841)
management process (840)
managerial accounting (839)
manufacturing overhead (845)
materials inventory (848)
merchandise available for sale (849)
objectives (goals) (841)
operational planning (841)
period costs (846)
planning (841)
prime costs (846)
product costs (846)
staff department (840)
statement of cost of goods manufactured (850)
strategic planning (841)
strategies (841)
work in process inventory (848)

Illustrative Problem

The following is a list of costs that were incurred in producing this textbook:

a. Insurance on the factory building and equipment
b. Salary of the vice president of finance
c. Hourly wages of printing press operators during production
d. Straight-line depreciation on the printing presses used to manufacture the text
e. Electricity used to run the presses during the printing of the text
f. Sales commissions paid to textbook representatives for each text sold
g. Paper on which the text is printed
h. Book covers used to bind the pages
i. Straight-line depreciation on an office building
j. Salaries of staff used to develop artwork for the text
k. Glue used to bind pages to cover

Instructions

With respect to the manufacture and sale of this text, classify each cost as either a product cost or a period cost. Indicate whether each product cost is a direct materials cost, a direct labor cost, or a factory overhead cost. Indicate whether each period cost is a selling expense or an administrative expense.

Solution

	Product Cost			Period Cost	
Cost	**Direct Materials Cost**	**Direct Labor Cost**	**Factory Overhead Cost**	**Selling Expense**	**Administrative Expense**
a.			X		
b.					X
c.		X			
d.			X		
e.			X		
f.				X	
g.	X				
h.	X				
i.					X
j.			X		
k.			X		

Discussion Questions

1. What are the major differences between managerial accounting and financial accounting?
2. a. Differentiate between a department with line responsibility and a department with staff responsibility.
   b. In an organization that has a Sales Department and a Personnel Department, among others, which of the two departments has (1) line responsibility and (2) staff responsibility?
3. What manufacturing cost term is used to describe the cost of materials that are an integral part of the manufactured end product?
4. Distinguish between prime costs and conversion costs.
5. What is the difference between a product cost and a period cost?
6. Name the three inventory accounts for a manufacturing business, and describe what each balance represents at the end of an accounting period.
7. In what order should the three inventories of a manufacturing business be presented on the balance sheet?
8. What are the three categories of manufacturing costs included in the cost of finished goods and the cost of work in process?
9. For a manufacturer, what is the description of the account that is comparable to a merchandising business's cost of merchandise sold?
10. How does the Cost of Goods Sold section of the income statement differ between merchandising and manufacturing companies?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 1 **EE 18-1** *p. 842*

PE 18-1A Management process

Three phases of the management process are controlling, planning, and decision making. Match the following descriptions to the proper phase.

Phase of management process	Description
Controlling	a. Long-range courses of action.
Decision making	b. Inherent in planning, directing, controlling, and improving.
Planning	c. Monitoring the operating results of implemented plans and comparing the actual results with expected results.

OBJ. 1 **EE 18-1** *p. 842*

PE 18-1B Management process

Three phases of the management process are planning, directing, and controlling. Match the following descriptions to the proper phase.

Phase of management process	Description
Directing	a. Isolating significant departures from plans for further investigation and possible remedial action. It may lead to a revision of future plans.
Controlling	b. Developing long-range courses of action to achieve goals.
Planning	c. Process by which managers, given their assigned levels of responsibilities, run day-to-day operations.

OBJ. 2 **EE 18-2** *p. 845*

PE 18-2A Direct materials, direct labor, and factory overhead

Identify the following costs as direct materials (DM), direct labor (DL), or factory overhead (FO) for an automobile manufacturer.

a. Steel
b. Wages of employees that operate painting equipment
c. Oil used for assembly line machinery
d. Wages of the plant supervisor

OBJ. 2 **EE 18-2** *p. 845*

PE 18-2B Direct materials, direct labor, and factory overhead

Identify the following costs as direct materials (DM), direct labor (DL), or factory overhead (FO) for a magazine publisher.

a. Paper used in the magazine
b. Maintenance on printing machines
c. Wages of printing machine employees
d. Staples used to bind magazines

OBJ. 2 **EE 18-3** *p. 846*

PE 18-3A Prime and conversion costs

Identify the following costs as a prime cost (P), conversion cost (C), or both (B) for an automobile manufacturer.

a. Steel
b. Wages of employees that operate painting equipment
c. Oil used for assembly line machinery
d. Wages of the plant manager

Learning Objectives *Example Exercises*

OBJ. 2 **EE 18-3** *p. 846*

PE 18-3B Prime and conversion costs

Identify the following costs as a prime cost (P), conversion cost (C), or both (B) for a magazine publisher.

a. Maintenance on printing machines
b. Glue used to bind magazine
c. Wages of printing machine employees
d. Paper used for the magazine

OBJ. 2 **EE 18-4** *p. 848*

PE 18-4A Product and period costs

Identify the following costs as a product cost or a period cost for an automobile manufacturer.

a. Sales staff salaries
b. Rent on office building
c. Wages of employees that operate painting equipment
d. Steel

OBJ. 2 **EE 18-4** *p. 848*

PE 18-4B Product and period costs

Identify the following costs as a product cost or a period cost for a magazine publisher.

a. Maintenance on printing machines
b. Sales salaries
c. Depreciation expense—corporate headquarters
d. Paper used for the magazine

OBJ. 3 **EE 18-5** *p. 852*

PE 18-5A Cost of goods sold, cost of goods manufactured

Swain Company has the following information for January:

Cost of direct materials used in production	$12,000
Direct labor	31,000
Factory overhead	20,000
Work in process inventory, January 1	50,000
Work in process inventory, January 31	53,000
Finished goods inventory, January 1	21,000
Finished goods inventory, January 31	24,000

For January, determine (a) the cost of goods manufactured and (b) the cost of goods sold.

OBJ. 3 **EE 18-5** *p. 852*

PE 18-5B Cost of goods sold, cost of goods manufactured

Dandee Company has the following information for July:

Cost of direct materials used in production	$ 84,000
Direct labor	110,000
Factory overhead	56,000
Work in process inventory, July 1	41,000
Work in process inventory, July 31	37,000
Finished goods inventory, July 1	47,000
Finished goods inventory, July 31	34,000

For July, determine (a) the cost of goods manufactured and (b) the cost of goods sold.

Exercises

OBJ. 2

EX 18-1 Classifying costs as materials, labor, or factory overhead

Indicate whether each of the following costs of an automobile manufacturer would be classified as direct materials cost, direct labor cost, or factory overhead cost:

a. Depreciation of welding equipment
b. Assembly machinery lubricants
c. Steering wheel
d. Wages of assembly line worker
e. Tires
f. V8 automobile engine
g. Salary of test driver
h. Steel used in body

OBJ. 2

EX 18-2 Classifying costs as materials, labor, or factory overhead

Indicate whether the following costs of **Colgate-Palmolive Company**, a maker of consumer products, would be classified as direct materials cost, direct labor cost, or factory overhead cost:

a. Scents and fragrances
b. Wages paid to Packaging Department employees
c. Resins for soap and shampoo products
d. Maintenance supplies
e. Depreciation on production machinery
f. Salary of process engineers
g. Plant manager salary for the Clarksville, Indiana, soap plant
h. Packaging materials
i. Depreciation on the Morristown, Tennessee, toothpaste plant
j. Wages of production line employees

OBJ. 2

EX 18-3 Classifying costs as factory overhead

Which of the following items are properly classified as part of factory overhead for **Caterpillar**, a maker of heavy machinery and equipment?

a. Sales incentive fees to dealers
b. Factory supplies used in the Danville, Kentucky, tractor tread plant
c. Depreciation on Peoria, Illinois, headquarters building
d. Interest expense on debt
e. Amortization of patents on new assembly process
f. Steel plate
g. Vice president of finance's salary
h. Property taxes on the Aurora, Illinois, manufacturing plant
i. Plant manager's salary at Aurora, Illinois, manufacturing plant
j. Consultant fees for a study of production line employee productivity

OBJ. 2

EX 18-4 Classifying costs as product or period costs

For apparel manufacturer **Ann Taylor, Inc.**, classify each of the following costs as either a product cost or a period cost:

a. Advertising expenses
b. Salaries of distribution center personnel
c. Factory janitorial supplies

d. Repairs and maintenance costs for sewing machines
e. Travel costs of media relations employees
f. Fabric used during production
g. Depreciation on office equipment
h. Salary of production quality control supervisor
i. Utility costs for office building
j. Depreciation on sewing machines
k. Factory supervisors' salaries
l. Wages of sewing machine operators
m. Property taxes on factory building and equipment
n. Research and development costs
o. Chief financial officer's salary
p. Sales commissions
q. Oil used to lubricate sewing machines

OBJ. 1, 2

EX 18-5 Concepts and terminology

From the choices presented in parentheses, choose the appropriate term for completing each of the following sentences:

a. The implementation of automatic, robotic factory equipment normally (increases, decreases) the direct labor component of product costs.
b. Payments of cash or the commitment to pay cash in the future for the purpose of generating revenues are (costs, expenses).
c. Feedback is often used to (improve, direct) operations.
d. Advertising costs are usually viewed as (period, product) costs.
e. The balance sheet of a manufacturer would include an account for (cost of goods sold, work in process inventory).
f. A product, sales territory, department, or activity to which costs are traced is called a (direct cost, cost object).
g. Factory overhead costs combined with direct labor costs are called (prime, conversion) costs.

OBJ. 1, 2

EX 18-6 Concepts and terminology

From the choices presented in parentheses, choose the appropriate term for completing each of the following sentences:

a. An example of factory overhead is (sales office depreciation, plant depreciation).
b. The plant manager's salary would be considered (direct, indirect) to the product.
c. Materials for use in production are called (supplies, materials inventory).
d. Direct materials costs combined with direct labor costs are called (prime, conversion) costs.
e. The phase of the management process that uses process information to eliminate the source of problems in a process so that the process delivers the correct product in the correct quantities is called (directing, improving).
f. The wages of an assembly worker are normally considered a (period, product) cost.
g. Short-term plans are called (strategic, operational) plans.

OBJ. 2

EX 18-7 Classifying costs in a service company

A partial list of the costs for Wisconsin and Minnesota Railroad, a short hauler of freight, is provided below. Classify each cost as either indirect or direct. For purposes of classifying each cost as direct or indirect, use the train as the cost object.

a. Fuel costs
b. Maintenance costs of right of way, bridges, and buildings
c. Wages of switch and classification yard personnel

(continued)

d. Cost to lease (rent) train locomotives
e. Wages of train engineers
f. Cost to lease (rent) railroad cars
g. Depreciation of terminal facilities
h. Payroll clerk salaries
i. Safety training costs
j. Cost of track and bed (ballast) replacement
k. Salaries of dispatching and communications personnel
l. Costs of accident cleanup

OBJ. 2, 3

EX 18-8 Classifying costs

The following report was prepared for evaluating the performance of the plant manager of Nuuman Inc. Evaluate and correct this report.

Nuuman Inc.
Manufacturing Costs
For the Quarter Ended June 30, 2012

Materials used in production (including $70,000 of indirect materials)	$ 760,000
Direct labor (including $80,000 maintenance salaries)	700,000
Factory overhead:	
Supervisor salaries	510,000
Heat, light, and power	135,000
Sales salaries	327,000
Promotional expenses	304,000
Insurance and property taxes—plant	143,000
Insurance and property taxes—corporate offices	208,000
Depreciation—plant and equipment	119,000
Depreciation—corporate offices	92,000
Total	$3,298,000

OBJ. 3

✔ a. Net income, $36,000

EX 18-9 Financial statements of a manufacturing firm

The following events took place for Air Temp Manufacturing Company during January, the first month of its operations as a producer of digital thermometers:

a. Purchased $68,000 of materials.
b. Used $48,000 of direct materials in production.
c. Incurred $92,000 of direct labor wages.
d. Incurred $108,000 of factory overhead.
e. Transferred $217,000 of work in process to finished goods.
f. Sold goods with a cost of $170,000.
g. Earned revenues of $325,000.
h. Incurred $80,000 of selling expense.
i. Incurred $39,000 of administrative expense.

Using the above information, complete the following:

a. Prepare the January income statement for Air Temp Manufacturing Company.
b. Determine the inventory balances at the end of the first month of operations.

OBJ. 3

EX 18-10 Manufacturing company balance sheet

Partial balance sheet data for Lawler Company at December 31, 2012, are as follows:

Finished goods inventory	$23,000	Supplies	$41,000
Prepaid insurance	23,000	Materials inventory	50,000
Accounts receivable	60,000	Cash	64,000
Work in process inventory	90,000		

Prepare the Current Assets section of Lawler Company's balance sheet at December 31, 2012.

OBJ. 3

EX 18-11 Cost of direct materials used in production for a manufacturing company

Saron Manufacturing Company reported the following materials data for the month ending April 30, 2012:

Materials purchased	$860,000
Materials inventory, April 1	350,000
Materials inventory, April 30	300,000

Determine the cost of direct materials used in production by Saron during the month ended April 30, 2012.

OBJ. 3

✔ e. $7,000

EX 18-12 Cost of goods manufactured for a manufacturing company

Two items are omitted from each of the following three lists of cost of goods manufactured statement data. Determine the amounts of the missing items, identifying them by letter.

Work in process inventory, November 1	$ 16,000	$ 36,000	(e)
Total manufacturing costs incurred during November	112,000	(c)	42,000
Total manufacturing costs	(a)	$210,000	$49,000
Work in process inventory, November 30	24,000	48,000	(f)
Cost of goods manufactured	(b)	(d)	$43,000

OBJ. 3

EX 18-13 Cost of goods manufactured for a manufacturing company

The following information is available for Neaves Manufacturing Company for the month ending January 31, 2012:

Cost of direct materials used in production	$215,000
Direct labor	185,000
Work in process inventory, January 1	85,000
Work in process inventory, January 31	94,000
Total factory overhead	130,000

Determine Neaves' cost of goods manufactured for the month ended January 31, 2012.

OBJ. 3

✔ d. $142,000

EX 18-14 Income statement for a manufacturing company

Two items are omitted from each of the following three lists of cost of goods sold data from a manufacturing company income statement. Determine the amounts of the missing items, identifying them by letter.

Finished goods inventory, November 1	$ 44,000	$ 33,000	(e)
Cost of goods manufactured	235,000	(c)	404,000
Cost of finished goods available for sale	(a)	$186,000	$450,000
Finished goods inventory, November 30	52,000	44,000	(f)
Cost of goods sold	(b)	(d)	$428,000

OBJ. 3

✔ a. Total manufacturing costs, $1,190,200

EX 18-15 Statement of cost of goods manufactured for a manufacturing company

Cost data for Bedford Manufacturing Company for the month ending May 31, 2012, are as follows:

Inventories	May 1	May 31
Materials	$168,000	$139,000
Work in process	240,000	260,000
Finished goods	182,000	214,200

Direct labor	$475,000
Materials purchased during May	302,000
Factory overhead incurred during May:	
Indirect labor	57,200
Machinery depreciation	36,000
Heat, light, and power	13,000
Supplies	10,000
Property taxes	9,800
Miscellaneous cost	18,200

a. Prepare a cost of goods manufactured statement for May 2012.

b. Determine the cost of goods sold for May 2012.

OBJ. 3

✔a. Cost of goods sold, $274,000

EX 18-16 Cost of goods sold, profit margin, and net income for a manufacturing company

The following information is available for Vega Manufacturing Company for the month ending July 31, 2012:

Cost of goods manufactured	$270,000
Selling expenses	58,000
Administrative expenses	46,000
Sales	515,000
Finished goods inventory, July 1	66,000
Finished goods inventory, July 31	62,000

For the month ended July 31, 2012, determine Vega's (a) cost of goods sold, (b) gross profit, and (c) net income.

OBJ. 3

✔a. $260,000

EX 18-17 Cost flow relationships

The following information is available for the first month of operations of Enders Company, a manufacturer of mechanical pencils:

Sales	$630,000
Gross profit	370,000
Cost of goods manufactured	315,000
Indirect labor	84,000
Factory depreciation	22,000
Materials purchased	164,000
Total manufacturing costs for the period	362,000
Materials inventory	22,000

Using the above information, determine the following missing amounts:

a. Cost of goods sold

b. Finished goods inventory

c. Direct materials cost

d. Direct labor cost

e. Work in process inventory

Problems Series A

OBJ. 2

PR 18-1A Classifying costs

The following is a list of costs that were incurred in the production and sale of boats:

a. Annual bonus paid to top executives of the company.
b. Cost of paving the headquarters employee parking lot.
c. Steering wheels.
d. Salary of shop supervisor.
e. Power used by sanding equipment.
f. Cost of electrical wiring for boats.
g. Commissions to sales representatives, based upon the number of boats sold.
h. Legal department costs for the year.
i. Memberships for key executives in the Bass World Association.
j. Yearly cost maintenance contract for robotic equipment.
k. Cost of normal scrap from defective hulls.
l. Masks for use by sanders in smoothing boat hulls.
m. Decals for boat hull.
n. Salary of president of company.
o. Cost of boat for "grand prize" promotion in local bass tournament.
p. Special advertising campaign in *Bass World*.
q. Wood paneling for use in interior boat trim.
r. Cost of metal hardware for boats, such as ornaments and tie-down grasps.
s. Annual fee to pro-fisherman Bill Tennessee to promote the boats.
t. Canvas top for boats.
u. Straight-line depreciation on factory equipment.
v. Oil to lubricate factory equipment.
w. Fiberglass for producing the boat hull.
x. Salary of chief financial officer.
y. Hourly wages of assembly line workers.
z. Boat chairs.

Instructions

Classify each cost as either a product cost or a period cost. Indicate whether each product cost is a direct materials cost, a direct labor cost, or a factory overhead cost. Indicate whether each period cost is a selling expense or an administrative expense. Use the following tabular headings for your answer, placing an "X" in the appropriate column.

	Product Costs			Period Costs	
Cost	Direct Materials Cost	Direct Labor Cost	Factory Overhead Cost	Selling Expense	Administrative Expense

OBJ. 2

PR 18-2A Classifying costs

The following is a list of costs incurred by several businesses:

a. Cost of 30-second television commercial.
b. Fees charged by collection agency on past-due customer accounts.
c. Depreciation of robot used to assemble a product.
d. Rent for a warehouse used to store finished products.

e. Cost of plastic for a telephone being manufactured.
f. Wages of a machine operator on the production line.
g. Cost of sewing machine needles used by a shirt manufacturer.
h. Maintenance costs for factory equipment.
i. Depreciation of microcomputers used in the factory to coordinate and monitor the production schedules.
j. Charitable contribution to United Fund.
k. Maintenance and repair costs for factory equipment.
l. Telephone charges by president's office.
m. Wages of production quality control personnel.
n. Depreciation of copying machines used by the Marketing Department.
o. Electricity used to operate factory machinery.
p. Factory janitorial supplies.
q. Travel costs of marketing executives to annual sales meeting.
r. Oil lubricants for factory plant and equipment.
s. Depreciation of tools used in production.
t. Cost of fabric used by clothing manufacturer.
u. Salary of the vice president of manufacturing logistics.
v. Fees paid to lawn service for office grounds upkeep.
w. Surgeon's fee for heart bypass surgery.
x. Pens, paper, and other supplies used by the Accounting Department in preparing various managerial reports.

Instructions

Classify each of the preceding costs as a product cost or period cost. Indicate whether each product cost is a direct materials cost, a direct labor cost, or a factory overhead cost. Indicate whether each period cost is a selling expense or an administrative expense. Use the following tabular headings for preparing your answer, placing an "X" in the appropriate column.

	Product Costs			Period Costs	
Cost	Direct Materials Cost	Direct Labor Cost	Factory Overhead Cost	Selling Expense	Administrative Expense

---

OBJ. 2

PR 18-3A Cost classifications—service company

A partial list of Cottonwood Medical Center's costs is provided below.

a. Cost of patient meals.
b. Training costs for nurses.
c. Cost of intravenous solutions.
d. Depreciation of X-ray equipment.
e. Cost of blood tests.
f. Cost of improvements on the employee parking lot.
g. Salary of intensive care personnel.
h. Cost of new heart wing.
i. Nurses' salaries.
j. Operating room supplies used on patients (catheters, sutures, etc.).
k. Cost of advertising hospital services on television.
l. Cost of maintaining the staff and visitors' cafeteria.
m. Cost of laundry services for operating room personnel.
n. Utility costs of the hospital.

o. Cost of drugs used for patients.
p. Doctor's fee.
q. Cost of X-ray test.
r. Overtime incurred in the Records Department due to a computer failure.
s. General maintenance of the hospital.
t. Salary of the nutritionist.
u. Depreciation on patient rooms.

Instructions

1. What would be Cottonwood's most logical definition for the final cost object?
2. Identify whether each of the costs is to be classified as direct or indirect. For purposes of classifying each cost as direct or indirect, use the patient as the cost object.

OBJ. 2, 3

✓ 1. b. Jerry $344,000

PR 18-4A Manufacturing income statement, statement of cost of goods manufactured

Several items are omitted from each of the following income statement and cost of goods manufactured statement data for the month of December 2012:

	Tom Company	Jerry Company
Materials inventory, December 1	$ 187,200	$ 118,000
Materials inventory, December 31	(a)	120,000
Materials purchased	475,200	228,000
Cost of direct materials used in production	501,600	(a)
Direct labor	705,600	(b)
Factory overhead	218,400	120,000
Total manufacturing costs incurred during December	(b)	690,000
Total manufacturing costs	1,785,600	985,000
Work in process inventory, December 1	360,000	295,000
Work in process inventory, December 31	302,400	(c)
Cost of goods manufactured	(c)	683,000
Finished goods inventory, December 1	316,800	136,000
Finished goods inventory, December 31	331,200	(d)
Sales	2,760,000	1,117,000
Cost of goods sold	(d)	701,000
Gross profit	(e)	(e)
Operating expenses	360,000	(f)
Net income	(f)	256,000

Instructions

1. Determine the amounts of the missing items, identifying them by letter.
2. Prepare a statement of cost of goods manufactured for Jerry Company.
3. Prepare an income statement for Jerry Company.

OBJ. 2, 3

✔ 1. Cost of goods manufactured, $742,000

PR 18-5A Statement of cost of goods manufactured and income statement for a manufacturing company

The following information is available for The Green Hornet Corporation for 2012:

Inventories	January 1	December 31
Materials	$165,000	$210,000
Work in process	306,000	290,000
Finished goods	298,000	284,000

Advertising expense	$ 148,000
Depreciation expense—office equipment	21,000
Depreciation expense—factory equipment	20,900
Direct labor	360,000
Heat, light, and power—factory	8,400
Indirect labor	29,100
Materials purchased	325,000
Office salaries expense	115,000
Property taxes—factory	6,800
Property taxes—office building	18,000
Rent expense—factory	11,500
Sales	1,530,000
Sales salaries expense	188,000
Supplies—factory	5,700
Miscellaneous cost—factory	3,600

Instructions

1. Prepare the 2012 statement of cost of goods manufactured.
2. Prepare the 2012 income statement.

Problems Series B

OBJ. 2

PR 18-1B Classifying costs

The following is a list of costs that were incurred in the production and sale of lawn mowers:

a. Salary of factory supervisor.
b. Steel used in producing the lawn mowers.
c. Commissions paid to sales representatives, based on the number of lawn mowers sold.
d. Tires for lawn mowers.
e. Property taxes on the factory building and equipment.
f. Maintenance costs for new robotic factory equipment, based on hours of usage.
g. Hourly wages of operators of robotic machinery used in production.
h. Salary of vice president of marketing.
i. Gasoline engines used for lawn mowers.
j. Telephone charges for company controller's office.
k. Factory cafeteria cashier's wages.
l. Plastic for outside housing of lawn mowers.
m. Electricity used to run the robotic machinery.
n. Attorney fees for drafting a new lease for headquarters offices.
o. Paint used to coat the lawn mowers.
p. License fees for use of patent for lawn mower blade, based on the number of lawn mowers produced.

q. Cash paid to outside firm for janitorial services for factory.
r. Straight-line depreciation on the robotic machinery used to manufacture the lawn mowers.
s. Steering wheels for lawn mowers.
t. Cost of advertising in a national magazine.
u. Engine oil used in mower engines prior to shipment.
v. Premiums on insurance policy for factory buildings.
w. Payroll taxes on hourly assembly line employees.
x. Salary of quality control supervisor who inspects each lawn mower before it is shipped.
y. Cost of boxes used in packaging lawn mowers.
z. Filter for spray gun used to paint the lawn mowers.

Instructions

Classify each cost as either a product cost or a period cost. Indicate whether each product cost is a direct materials cost, a direct labor cost, or a factory overhead cost. Indicate whether each period cost is a selling expense or an administrative expense. Use the following tabular headings for your answer, placing an "X" in the appropriate column.

	Product Costs			Period Costs	
Cost	Direct Materials Cost	Direct Labor Cost	Factory Overhead Cost	Selling Expense	Administrative Expense

OBJ. 2

PR 18-2B Classifying costs

The following is a list of costs incurred by several businesses:

a. Hourly wages of warehouse laborers.
b. Wages of a machine operator on the production line.
c. Costs for television advertisement.
d. Wages of company controller's secretary.
e. Disk drives for a microcomputer manufacturer.
f. Packing supplies for products sold. These supplies are a very small portion of the total cost of the product.
g. Salary of quality control supervisor.
h. Executive bonus for vice president of marketing.
i. Protective glasses for factory machine operators.
j. Tires for an automobile manufacturer.
k. Cost of telephone operators for a toll-free hotline to help customers operate products.
l. Entertainment expenses for sales representatives.
m. Lumber used by furniture manufacturer.
n. Health insurance premiums paid for factory workers.
o. Seed for grain farmer.
p. Costs of operating a research laboratory.
q. Paper used by Computer Department in processing various managerial reports.
r. Factory operating supplies.
s. Cost of hogs for meat processor.
t. Maintenance and repair costs for factory equipment.
u. First-aid supplies for factory workers.

v. Sales commissions.
w. Paper used by commercial printer.
x. Depreciation of factory equipment.

Instructions

Classify each of the preceding costs as a product cost or period cost. Indicate whether each product cost is a direct materials cost, a direct labor cost, or a factory overhead cost. Indicate whether each period cost is a selling expense or an administrative expense. Use the following tabular headings for preparing your answer. Place an "X" in the appropriate column.

	Product Costs			Period Costs	
Cost	**Direct Materials Cost**	**Direct Labor Cost**	**Factory Overhead Cost**	**Selling Expense**	**Administrative Expense**

OBJ. 2

PR 18-3B Cost classifications—service company

A partial list of Berry Hotel's costs is provided below.

a. Cost of laundering towels and bedding.
b. Cost of food.
c. Cost to paint lobby.
d. Cost of advertising in local newspaper.
e. Cost to mail a customer survey.
f. Training for hotel restaurant servers.
g. Champagne for guests.
h. Wages of convention setup employees.
i. Pay per view movie rental costs (in rooms).
j. Cost of soaps and shampoos for rooms.
k. Wages of desk clerks.
l. Wages of kitchen employees.
m. Salary of the hotel president.
n. Depreciation of the hotel.
o. Wages of maids.
p. Cost to replace lobby furniture.
q. Cost of room mini-bar supplies.
r. Utility cost.
s. Wages of bellhops.
t. Cost of valet parking.
u. Guest room telephone costs for long-distance calls.
v. General maintenance supplies.
w. Cost of new carpeting.

Instructions

1. What would be Berry's most logical definition for the final cost object?
2. Identify whether each of the costs is to be classified as direct or indirect. For purposes of classifying each cost as direct or indirect, use the hotel guest as the cost object.

OBJ. 2, 3

✓1. Margo, c. $572,000

PR 18-4B Manufacturing income statement, statement of cost of goods manufactured

Several items are omitted from each of the following income statement and cost of goods manufactured statement data for the month of December 2012:

	Margo Company	Rita Company
Materials inventory, December 1	$ 47,000	$ 139,500
Materials inventory, December 31	(a)	65,100
Materials purchased	202,000	(a)
Cost of direct materials used in production	227,000	(b)
Direct labor	277,000	412,300
Factory overhead	106,000	182,900
Total manufacturing costs incurred in December	(b)	1,085,000
Total manufacturing costs	695,000	1,233,800
Work in process inventory, December 1	85,000	148,800
Work in process inventory, December 31	123,000	(c)
Cost of goods manufactured	(c)	1,094,300
Finished goods inventory, December 1	160,000	192,200
Finished goods inventory, December 31	141,000	(d)
Sales	805,000	1,388,800
Cost of goods sold	(d)	1,103,600
Gross profit	(e)	(e)
Operating expenses	84,000	(f)
Net income	(f)	117,800

Instructions

1. Determine the amounts of the missing items, identifying them by letter.
2. Prepare a statement of cost of goods manufactured for Margo Company.
3. Prepare an income statement for Margo Company.

OBJ. 2, 3

✓1. Cost of goods manufactured, $226,000

PR 18-5B Statement of cost of goods manufactured and income statement for a manufacturing company

The following information is available for Yu Company for 2012:

Inventories	January 1	December 31
Materials	$47,000	$58,500
Work in process	67,000	59,000
Finished goods	70,000	62,000

Advertising expense	$ 42,500
Depreciation expense—office equipment	13,800
Depreciation expense—factory equipment	9,000
Direct labor	115,000
Heat, light, and power—factory	3,600
Indirect labor	14,400
Materials purchased	76,000
Office salaries expense	46,800
Property taxes—factory	2,500
Property taxes—headquarters building	8,400
Rent expense—factory	4,000
Sales	529,000
Sales salaries expense	82,500
Supplies—factory	3,000
Miscellaneous cost—factory	2,000

Instructions

1. Prepare the 2012 statement of cost of goods manufactured.
2. Prepare the 2012 income statement.

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

pin/Redferns/Getty Images

CHAPTER 19

Job Order Costing

Paul Stanley's Guitar

As we discussed in Chapter 18, Paul Stanley of the legendary rock band **KISS** uses a custom-made guitar purchased from **Washburn Guitars**. In fact, Paul Stanley designed his guitar in partnership with Washburn Guitars, as have other rock stars like Dan Donnegan of the rock band **Disturbed**. Washburn's guitars are precision instruments that require high-quality materials and careful craftsmanship. As a result, amateurs and professionals are willing to pay between $1,100 and $10,000 for a PS (Paul Stanley) Series guitar. In order for Washburn to stay in business, the purchase price of the guitar must be greater than the cost of producing the guitar. So, how does Washburn determine the cost of producing a guitar?

Costs associated with creating a guitar include materials such as wood and strings, the wages of employees who build the guitar, and factory overhead. To determine the purchase price of Paul Stanley's guitar, Washburn identifies and records the costs that go into the guitar during each step of the manufacturing process. As the guitar moves through the production process, the costs of direct materials, direct labor, and factory overhead are recorded. When the guitar is complete, the costs that have been recorded are added up to determine the cost of Paul Stanley's unique guitar. The company then prices the guitar to achieve a level of profit over the cost of the guitar. This chapter introduces the principles of accounting systems that accumulate costs in the same manner as they were for Paul Stanley's guitar.

Learning Objectives

After studying this chapter, you should be able to:

	Example Exercises	*Page*
OBJ. 1 Describe cost accounting systems used by manufacturing businesses.		
Cost Accounting System Overview		
OBJ. 2 Describe and illustrate a job order cost accounting system.		
Job Order Cost Systems for Manufacturing Businesses		
Materials	EE 19-1	877
Factory Labor	EE 19-2	879
Factory Overhead Cost	EE 19-3, 19-4	880, 883
Work In Process	EE 19-5	885
Finished Goods		
Sales and Cost of Goods Sold	EE 19-6	886
Period Costs		
Summary of Cost Flows for Legend Guitars		
OBJ. 3 Describe the use of job order cost information for decision making.		
Job Order Costing for Decision Making		
OBJ. 4 Describe the flow of costs for a service business that uses a job order cost accounting system.		
Job Order Cost Systems for Professional Service Businesses		

At a Glance 19 Page 891

OBJ. 1 Describe cost accounting systems used by manufacturing businesses.

Cost Accounting System Overview

Cost accounting systems measure, record, and report product costs. Managers use product costs for setting product prices, controlling operations, and developing financial statements.

The two main types of cost accounting systems for manufacturing operations are:

1. Job order cost systems
2. Process cost systems

A **job order cost system** provides product costs for each quantity of product that is manufactured. Each quantity of product that is manufactured is called a *job*. Job order cost systems are often used by companies that manufacture custom products for customers or batches of similar products. Manufacturers that use a job order cost system are sometimes called *job shops*. An example of a job shop would be an apparel manufacturer, such as Levi Strauss & Co., or a guitar manufacturer such as Washburn Guitars.

Warner Bros. and other movie studios use job order cost systems to accumulate movie production and distribution costs. Costs such as actor salaries, production costs, movie print costs, and marketing costs are accumulated in a job account for a particular movie.

A **process cost system** provides product costs for each manufacturing department or process. Process cost systems are often used by companies that manufacture units of a product that are indistinguishable from each other and are manufactured using a continuous production process. Examples would be oil refineries, paper producers, chemical processors, and food processors.

Job order and process cost systems are widely used. A company may use a job order cost system for some of its products and a process cost system for other products.

The process cost system is illustrated in Chapter 20. In this chapter, the job order cost system is illustrated. As a basis for illustration, Legend Guitars, a manufacturer of guitars, is used. Exhibit 1 provides a summary of Legend Guitars' manufacturing operations, which were described in Chapter 18.

OBJ. 2 Describe and illustrate a job order cost accounting system.

Job Order Cost Systems for Manufacturing Businesses

A job order cost system records and summarizes manufacturing costs by jobs. The flow of manufacturing costs in a job order system is illustrated in Exhibit 2.

EXHIBIT 1

Summary of Legend Guitars' Manufacturing Operations

Manufacturing Operations	
Cutting	Employees cut the body and neck of the guitar out of wood.
Assembling	Employees assemble and finish the guitars.
Product Costs	
Direct materials	The cost of material that is an integral part of and a significant portion of the total cost of the final product. The cost of wood used in the neck and body of the guitars.
Direct labor	The cost of employee wages that is an integral part of and a significant portion of the total cost of the final product. The wages of the cutting and assembling employees.
Factory overhead	Costs other than direct materials and direct labor that are incurred in the manufacturing process. The cost of guitar strings, glue, sandpaper, buffing compound, paint, salaries of production supervisors, janitorial salaries, and factory utilities.
Inventories	
Materials	Includes the cost of direct and indirect materials used to produce the guitars. Direct materials include the cost of wood used in the neck and body of the guitars. Indirect materials include guitar strings, glue, sandpaper, buffing compound, varnish, and paint.
Work in process	Includes the product costs of units that have entered the manufacturing process, but have not been completed. The product costs of guitars for which the neck and body have been cut, but not yet assembled.
Finished goods	Includes the cost of completed (or finished) products that have not been sold. The product costs assigned to completed guitars that have not yet been sold.

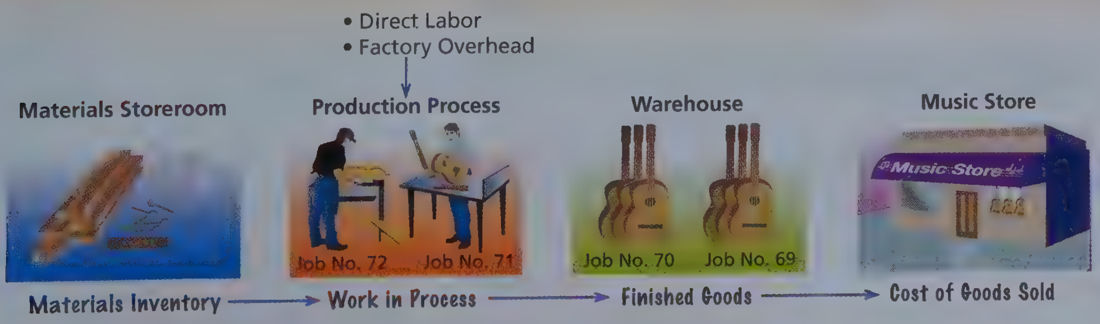
Exhibit 2 indicates that although the materials for Jobs 71 and 72 have been added, both jobs are still in the production process. Thus, Jobs 71 and 72 are part of *Work in Process Inventory*. In contrast, Exhibit 2 indicates that Jobs 69 and 70 have been completed. Thus, Jobs 69 and 70 are part of *Finished Goods Inventory*. Exhibit 2 also indicates that when finished guitars are sold to music stores, their costs become part of *Cost of Goods Sold*.

In a job order cost accounting system, perpetual inventory controlling accounts and subsidiary ledgers are maintained for materials, work in process, and finished goods inventories as shown on the next page.

Materials

The materials account in the general ledger is a controlling account. A separate account for each type of material is maintained in a subsidiary **materials ledger**.

EXHIBIT 2 **Flow of Manufacturing Costs**



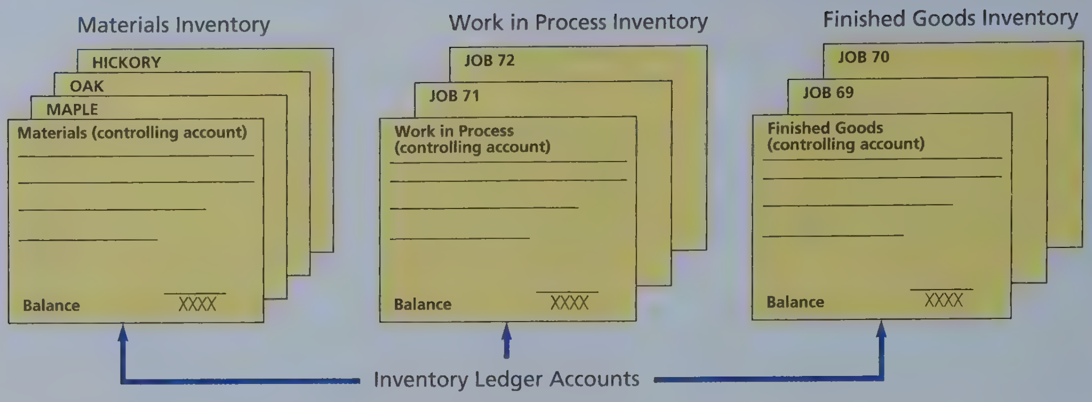
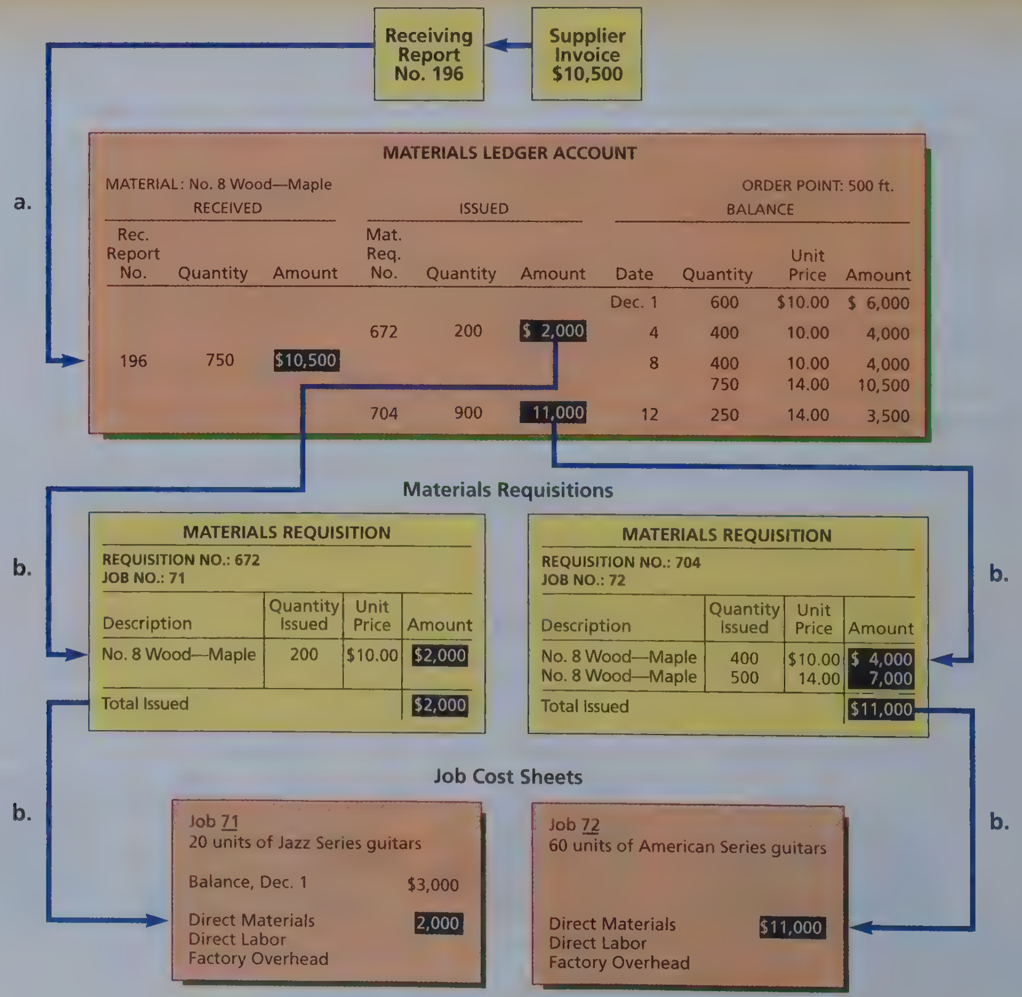


Exhibit 3 shows Legend Guitars' materials ledger account for maple. Increases (debits) and decreases (credits) to the account are as follows:

1. Increases (debits) are based on *receiving reports* such as Receiving Report No. 196 for $10,500, which is supported by the supplier's invoice.
2. Decreases (credits) are based on *materials requisitions* such as Requisition No. 672 for $2,000 for Job 71 and Requisition No. 704 for $11,000 for Job 72.

EXHIBIT 3

Materials Information and Cost Flows



MATERIALS LEDGER ACCOUNT

MATERIAL: No. 8 Wood—Maple ORDER POINT: 500 ft.

RECEIVED			ISSUED			BALANCE			
Rec. Report No.	Quantity	Amount	Mat. Req. No.	Quantity	Amount	Date	Quantity	Unit Price	Amount
						Dec. 1	600	$10.00	$ 6,000
			672	200	$ 2,000	4	400	10.00	4,000
196	750	$10,500				8	400 750	10.00 14.00	4,000 10,500
			704	900	11,000	12	250	14.00	3,500

MATERIALS REQUISITION

REQUISITION NO.: 672
JOB NO.: 71

Description	Quantity Issued	Unit Price	Amount
No. 8 Wood—Maple	200	$10.00	$2,000
Total Issued			$2,000

MATERIALS REQUISITION

REQUISITION NO.: 704
JOB NO.: 72

Description	Quantity Issued	Unit Price	Amount
No. 8 Wood—Maple No. 8 Wood—Maple	400 500	$10.00 14.00	$ 4,000 7,000
Total Issued			$11,000

Job 71
20 units of Jazz Series guitars

Balance, Dec. 1	$3,000
Direct Materials	2,000
Direct Labor	
Factory Overhead	

Job 72
60 units of American Series guitars

Direct Materials	$11,000
Direct Labor	
Factory Overhead	

A **receiving report** is prepared when materials that have been ordered are received and inspected. The quantity received and the condition of the materials are entered on the receiving report. When the supplier's invoice is received, it is compared to the receiving report. If there are no discrepancies, a journal entry is made to record the purchase. The journal entry to record the supplier's invoice related to Receiving Report No. 196 in Exhibit 3 is as follows:

	a.	Materials		10,500	
		Accounts Payable			10,500
		Materials purchased during December.			

The storeroom releases materials for use in manufacturing when a **materials requisition** is received. Examples of materials requisitions are shown in Exhibit 3.

The materials requisitions for each job serve as the basis for recording materials used. For direct materials, the quantities and amounts from the materials requisitions are posted to job cost sheets. **Job cost sheets**, which are also illustrated in Exhibit 3, make up the work in process subsidiary ledger.

Exhibit 3 shows the posting of $2,000 of direct materials to Job 71 and $11,000 of direct materials to Job 72.[1] Job 71 is an order for 20 units of Jazz Series guitars, while Job 72 is an order for 60 units of American Series guitars.

A summary of the materials requisitions is used as a basis for the journal entry recording the materials used for the month. For direct materials, this entry increases (debits) Work in Process and decreases (credits) Materials as shown below.

	b.	Work in Process		13,000	
		Materials			13,000
		Materials requisitioned to jobs			
		($2,000 + $11,000).			

Many companies use computerized information processes to record the use of materials. In such cases, storeroom employees electronically record the release of materials, which automatically updates the materials ledger and job cost sheets.

Integrity, Objectivity, and Ethics in Business

PHONY INVOICE SCAMS

A popular method for defrauding a company is to issue a phony invoice. The scam begins by initially contacting the target firm to discover details of key business contacts, business operations, and products. The swindler then uses this information to create a fictitious invoice. The invoice will include names, figures, and other details to give it the appearance of legitimacy. This type of scam can be avoided if invoices are matched with receiving documents prior to issuing a check.

Example Exercise 19-1 Issuance of Materials

2

On March 5, Hatch Company purchased 400 units of raw materials at $14 per unit. On March 10, raw materials were requisitioned for production as follows: 200 units for Job 101 at $12 per unit and 300 units for Job 102 at $14 per unit. Journalize the entry on March 5 to record the purchase and on March 10 to record the requisition from the materials storeroom.

(Continued)

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[1] To simplify, Exhibit 3 and this chapter use the first-in, first-out cost flow method.

Follow My Example 19-1

Mar. 5	Materials	5,600	
	Accounts Payable		5,600
	$5,600 = 400 × $14.		
10	Work in Process	6,600*	
	Materials		6,600

*Job 101	$2,400 = 200 × $12
Job 102	4,200 = 300 × $14
Total	$6,600

Practice Exercises: **PE 19-1A, PE 19-1B**

Factory Labor

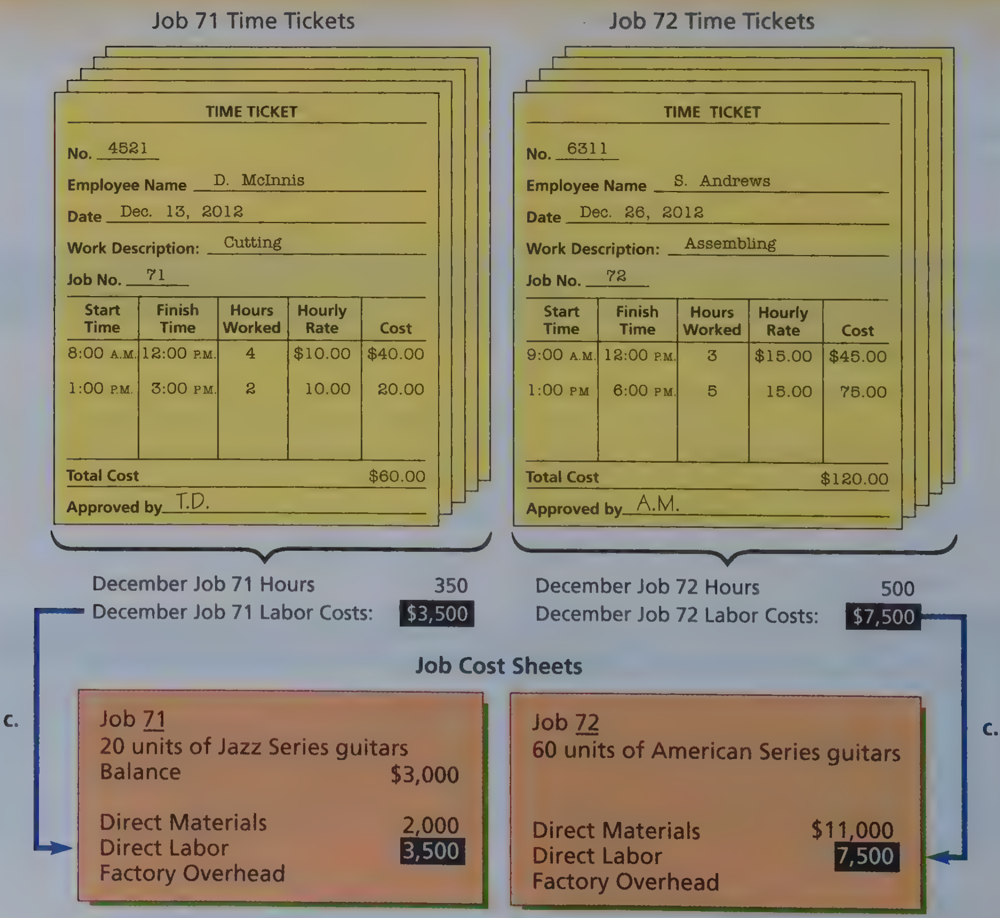
When employees report for work, they may use *clock cards*, *in-and-out cards*, or *electronic badges* to clock in. When employees work on an individual job, they use **time tickets**. Exhibit 4 illustrates time tickets for Jobs 71 and 72.

Exhibit 4 shows that on December 13, 2012, D. McInnis spent six hours working on Job 71 at an hourly rate of $10 for a cost of $60 (6 hrs. × $10). Exhibit 4 also indicates that a total of 350 hours was spent by employees on Job 71 during December for a total cost of $3,500. This total direct labor cost of $3,500 is posted to the job cost sheet for Job 71, as shown in Exhibit 4.

Likewise, Exhibit 4 shows that on December 26, 2012, S. Andrews spent eight hours on Job 72 at an hourly rate of $15 for a cost of $120 (8 hrs. × $15). A total

EXHIBIT 4

Labor Information and Cost Flows



Job 71 Time Tickets

TIME TICKET

No. 4521

Employee Name D. McInnis

Date Dec. 13, 2012

Work Description: Cutting

Job No. 71

Start Time	Finish Time	Hours Worked	Hourly Rate	Cost
8:00 A.M.	12:00 P.M.	4	$10.00	$40.00
1:00 P.M.	3:00 P.M.	2	10.00	20.00

Total Cost $60.00

Approved by T.D.

Job 72 Time Tickets

TIME TICKET

No. 6311

Employee Name S. Andrews

Date Dec. 26, 2012

Work Description: Assembling

Job No. 72

Start Time	Finish Time	Hours Worked	Hourly Rate	Cost
9:00 A.M.	12:00 P.M.	3	$15.00	$45.00
1:00 P.M.	6:00 P.M.	5	15.00	75.00

Total Cost $120.00

Approved by A.M.

December Job 71 Hours 350
December Job 71 Labor Costs: $3,500

December Job 72 Hours 500
December Job 72 Labor Costs: $7,500

Job Cost Sheets

Job 71
20 units of Jazz Series guitars

Balance	$3,000
Direct Materials	2,000
Direct Labor	3,500
Factory Overhead	

Job 72
60 units of American Series guitars

Direct Materials	$11,000
Direct Labor	7,500
Factory Overhead	

of 500 hours was spent by employees on Job 72 during December for a total cost of $7,500. This total direct labor cost of $7,500 is posted to the job cost sheet for Job 72, as shown in Exhibit 4.

A summary of the time tickets is used as the basis for the journal entry recording direct labor for the month. This entry increases (debits) Work in Process and increases (credits) Wages Payable, as shown below.

	c.	Work in Process		11,000	
		Wages Payable			11,000
		Factory labor used in production of jobs ($3,500 + $7,500).			

As with direct materials, many businesses use computerized information processing to record direct labor. In such cases, employees may log their time directly into computer terminals at their workstations. In other cases, employees may be issued magnetic cards, much like credit cards, to log in and out of work assignments.

Example Exercise 19-2 Direct Labor Costs

OBJ. 2

During March, Hatch Company accumulated 800 hours of direct labor costs on Job 101 and 600 hours on Job 102. The total direct labor was incurred at a rate of $16 per direct labor hour for Job 101 and $12 per direct labor hour for Job 102. Journalize the entry to record the flow of labor costs into production during March.

Follow My Example 19-2

Work in Process	20,000*	
Wages Payable		20,000

*Job 101	$12,800 = 800 hrs. × $16
Job 102	7,200 = 600 hrs. × $12
Total	$20,000

Practice Exercises: **PE 19-2A, PE 19-2B**

Business Connection

BMW'S FACTORY LABOR EXPERIMENT

In 2007, managers at Bavarian Motorworks (BMW) began to worry about the increasing age of their workforce. The average age of manufacturing plant workers was expected to increase from 39 to 47 by 2017. To plan for this change, BMW conducted an experiment by altering the age makeup of workers on one of the company's production lines to match the average age anticipated in 2017. In addition, the company made 70 changes to the production line to reduce the chance of error and physical strain. The changes resulted in a 7% improvement in productivity and a 2% decrease in employee absences from work. The company now uses the line as a model of quality and productivity for the rest of the company.

Source: C. Loch, F. Sting, N. Bauer, and H. Mauermann, "How BMW Is Defusing the Demographic Time Bomb," *Harvard Business Review*, March 2010.

Factory Overhead Cost

Factory overhead includes all manufacturing costs except direct materials and direct labor.

Factory overhead costs come from a variety of sources including the following:

- *Indirect materials* comes from a summary of materials requisitions.
- *Indirect labor* comes from the salaries of production supervisors and the wages of other employees such as janitors.

3. *Factory power* comes from utility bills.
4. *Factory depreciation* comes from Accounting Department computations of depreciation.

To illustrate the recording of factory overhead, assume that Legend Guitars incurred $4,600 of overhead in December. The $500 of materials consisted of $200 of glue and $300 of sandpaper. The entry to record the factory overhead is shown below.

	d.	Factory Overhead		4,600	
		Materials			500
		Wages Payable			2,000
		Utilities Payable			900
		Accumulated Depreciation			1,200
		Factory overhead incurred in production.			

Example Exercise 19-3 Factory Overhead Costs

2

During March, Hatch Company incurred factory overhead costs as follows: indirect materials, $800; indirect labor, $3,400; utilities cost, $1,600; and factory depreciation, $2,500. Journalize the entry to record the factory overhead incurred during March.

Follow My Example 19-3

Factory Overhead	8,300	
Materials		800
Wages Payable		3,400
Utilities Payable		1,600
Accumulated Depreciation		2,500

Practice Exercises: **PE 19-3A, PE 19-3B**

Allocating Factory Overhead Factory overhead is different from direct labor and direct materials in that it is *indirectly* related to the jobs. That is, factory overhead costs cannot be identified with or traced to specific jobs. For this reason, factory overhead costs are allocated to jobs. The process by which factory overhead or other costs are assigned to a cost object, such as a job, is called **cost allocation**.

The factory overhead costs are *allocated* to jobs using a common measure related to each job. This measure is called an **activity base**, *allocation base*, or *activity driver*. The activity base used to allocate overhead should reflect the consumption or use of factory overhead costs. For example, production supervisor salaries could be allocated on the basis of direct labor hours or direct labor cost of each job.

Predetermined Factory Overhead Rate Factory overhead costs are normally allocated or *applied* to jobs using a **predetermined factory overhead rate**. The predetermined factory overhead rate is computed as follows:

$$\textbf{Predetermined Factory Overhead Rate} = \frac{\textbf{Estimated Total Factory Overhead Costs}}{\textbf{Estimated Activity Base}}$$

To illustrate, assume that Legend Guitars estimates the total factory overhead cost as $50,000 for the year and the activity base as 10,000 direct labor hours. The predetermined factory overhead rate of $5 per direct labor hour is computed as follows:

$$\text{Predetermined Factory Overhead Rate} = \frac{\text{Estimated Total Factory Overhead Costs}}{\text{Estimated Activity Base}}$$

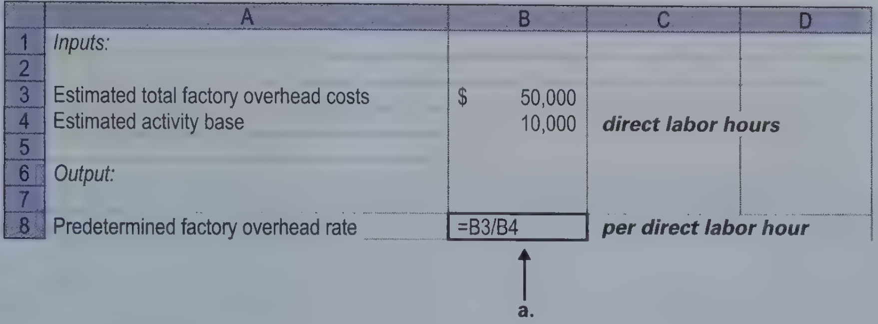
$$\text{Predetermined Factory Overhead Rate} = \frac{\$50{,}000}{10{,}000 \text{ direct labor hours}} = \$5 \text{ per direct labor hour}$$

As shown above, the predetermined overhead rate is computed using *estimated* amounts at the beginning of the period. This is because managers need timely information on the product costs of each job. If a company waited until all overhead costs were known at the end of the period, the allocated factory overhead would be accurate, but not timely. Only through timely reporting can managers adjust manufacturing methods or product pricing.

Many companies are using a method for accumulating and allocating factory overhead costs. This method, called **activity-based costing**, uses a different overhead rate for each type of factory overhead activity, such as inspecting, moving, and machining. Activity-based costing is discussed and illustrated in Chapter 25.

excel success

A spreadsheet can be used to calculate the predetermined factory overhead rate, as follows:



	A	B	C	D
1	*Inputs:*			
2				
3	Estimated total factory overhead costs	$ 50,000		
4	Estimated activity base	10,000	***direct labor hours***	
5				
6	*Output:*			
7				
8	Predetermined factory overhead rate	=B3/B4	***per direct labor hour***	

a. The predetermined factory overhead rate is determined by dividing the two inputs, =B3/B4.

The spreadsheet might involve multiple factories, thus requiring the calculation of multiple rates across columns or rows. In addition, spreadsheets are particularly useful when determining multiple activity rates under activity-based costing.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Applying Factory Overhead to Work in Process

Legend Guitars applies factory overhead using a rate of $5 per direct labor hour. The factory overhead applied to each job is recorded in the job cost sheets, as shown in Exhibit 5.

Exhibit 5 shows that 850 direct labor hours were used in Legend Guitars' December operations. Based on the time tickets, 350 hours can be traced to Job 71, and 500 hours can be traced to Job 72.

Using a factory overhead rate of $5 per direct labor hour, $4,250 of factory overhead is applied as follows:

	Direct Labor Hours	Factory Overhead Rate	Factory Overhead Applied
Job 71	350	$5	$1,750 (350 hrs. × $5)
Job 72	500	$5	2,500 (500 hrs. × $5)
Total	850		$4,250

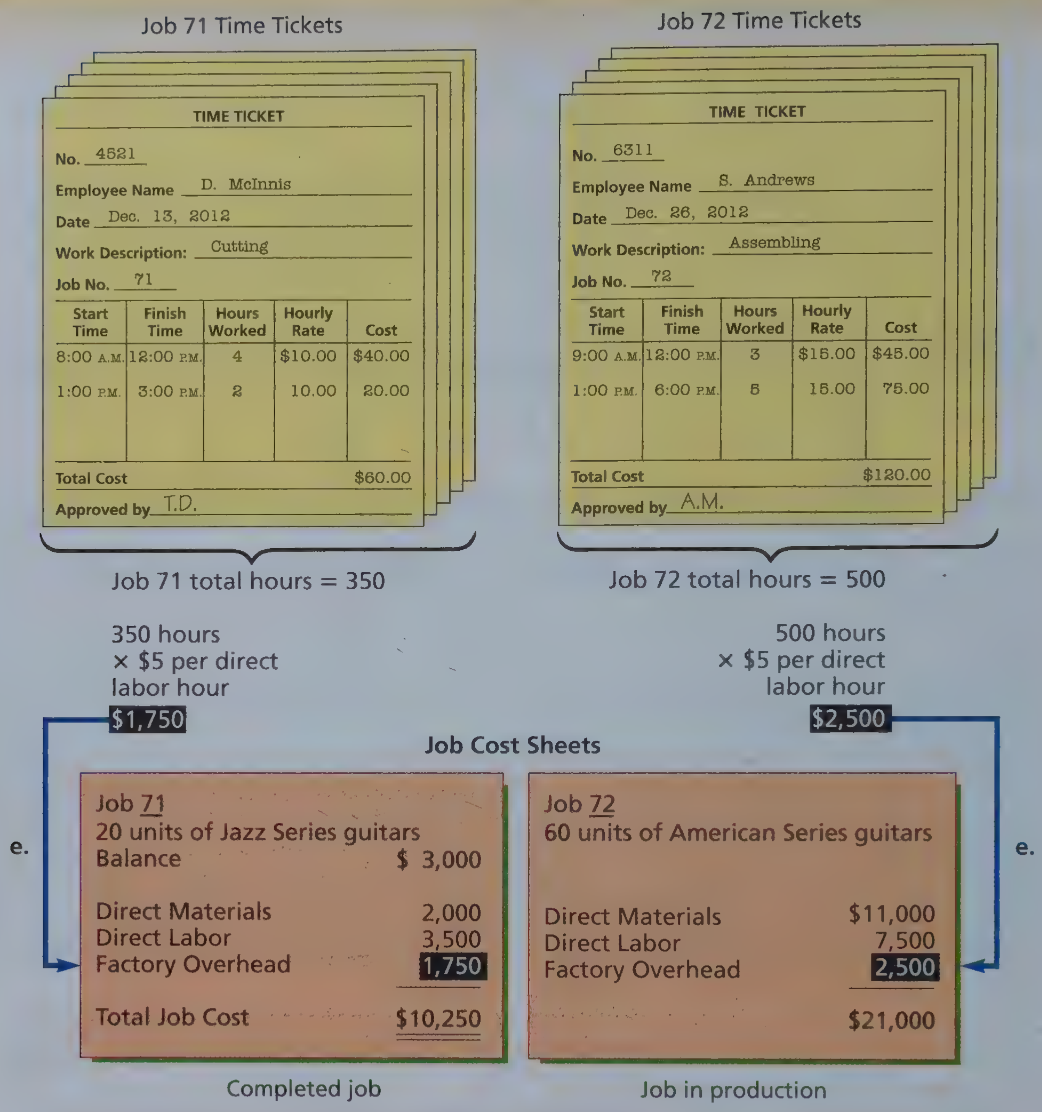
As shown in Exhibit 5, the applied overhead is posted to each job cost sheet. Factory overhead of $1,750 is posted to Job 71, which results in a total product cost on December 31, 2012, of $10,250. Factory overhead of $2,500 is posted to Job 72, which results in a total product cost on December 31, 2012, of $21,000.

The journal entry to apply factory overhead increases (debits) Work in Process and credits Factory Overhead. This journal entry to apply overhead to Jobs 71 and 72 is as follows:

e.	Work in Process		4,250	
	Factory Overhead			4,250
	Factory overhead applied to jobs according to the predetermined overhead rate (850 hrs. × $5).			

EXHIBIT 5

Applying Factory Overhead to Jobs



TIME TICKET

No. 4521

Employee Name D. McInnis

Date Dec. 13, 2012

Work Description: Cutting

Job No. 71

Start Time	Finish Time	Hours Worked	Hourly Rate	Cost
8:00 A.M.	12:00 P.M.	4	$10.00	$40.00
1:00 P.M.	3:00 P.M.	2	10.00	20.00

Total Cost $60.00

Approved by T.D.

TIME TICKET

No. 6311

Employee Name S. Andrews

Date Dec. 26, 2012

Work Description: Assembling

Job No. 72

Start Time	Finish Time	Hours Worked	Hourly Rate	Cost
9:00 A.M.	12:00 P.M.	3	$15.00	$45.00
1:00 P.M.	6:00 P.M.	5	15.00	75.00

Total Cost $120.00

Approved by A.M.

Job 71
20 units of Jazz Series guitars

Balance	$ 3,000
Direct Materials	2,000
Direct Labor	3,500
Factory Overhead	1,750
Total Job Cost	$10,250

Job 72
60 units of American Series guitars

Direct Materials	$11,000
Direct Labor	7,500
Factory Overhead	2,500
	$21,000

To summarize, the factory overhead account is:

1. Increased (debited) for the *actual overhead* costs incurred, as shown earlier for transaction (d) on page 880.
2. Decreased (credited) for the *applied overhead*, as shown above for transaction (e).

The actual and applied overhead usually differ because the actual overhead costs are normally different from the estimated overhead costs. Depending on whether actual overhead is greater or less than applied overhead, the factory overhead account will either have a debit or credit ending balance as follows:

1. If the applied overhead is *less than* the actual overhead incurred, the factory overhead account will have a debit balance. This debit balance is called **underapplied factory overhead** or *underabsorbed factory overhead*.
2. If the applied overhead is *more than* the actual overhead incurred, the factory overhead account will have a credit balance. This credit balance is called **overapplied factory overhead** or *overabsorbed factory overhead*.

The factory overhead account for Legend Guitars shown below illustrates both underapplied and overapplied factory overhead. Specifically, the December 1, 2012, credit balance of $200 represents overapplied factory overhead. In contrast, the December 31, 2012, debit balance of $150 represents underapplied factory overhead.

Account Factory Overhead **Account No.**

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012 Dec.	1	Balance					200
	31	Factory overhead cost incurred		4,600		4,400	
	31	Factory overhead cost applied			4,250	150	

Underapplied balance
Overapplied balance

If the balance of factory overhead (either underapplied or overapplied) becomes large, the balance and related overhead rate should be investigated. For example, a large balance could be caused by changes in manufacturing methods. In this case, the factory overhead rate should be revised.

Example Exercise 19-4 Applying Factory Overhead

OBJ. 2

Hatch Company estimates that total factory overhead costs will be $100,000 for the year. Direct labor hours are estimated to be 25,000. For Hatch Company, (a) determine the predetermined factory overhead rate, (b) determine the amount of factory overhead applied to Jobs 101 and 102 in March using the data on direct labor hours from Example Exercise 19-2, and (c) prepare the journal entry to apply factory overhead to both jobs in March according to the predetermined overhead rate.

Follow My Example 19-4

a. $4.00 = $100,000/25,000 direct labor hours

b.	Job 101	$3,200 = 800 hours × $4.00 per hour
	Job 102	2,400 = 600 hours × $4.00 per hour
	Total	$5,600

c.	Work in Process	5,600	
	Factory Overhead		5,600

Practice Exercises: **PE 19-4A, PE 19-4B**

Disposal of Factory Overhead Balance During the year, the balance in the factory overhead account is carried forward and reported as a deferred debit or credit on the monthly (interim) balance sheets. However, any balance in the factory overhead account should not be carried over to the next year. This is because any such balance applies only to operations of the current year.

If the estimates for computing the predetermined overhead rate are reasonably accurate, the ending balance of Factory Overhead should be relatively small. For this reason, the balance of Factory Overhead at the end of the year is disposed of by transferring it to the cost of goods sold account as follows:[2]

1. If there is an ending debit balance (underapplied overhead) in the factory overhead account, it is disposed of by the entry shown below.

		Cost of Goods Sold		XXX	
		Factory Overhead			XXX
		Transfer of underapplied overhead to cost of goods sold.			

---

[2] An ending balance in the factory overhead account may also be allocated among the work in process, finished goods, and cost of goods sold accounts. This brings these accounts into agreement with the actual costs incurred. This approach is rarely used and is only required for large ending balances in the factory overhead account. For this reason, it will not be used in this text.

2. If there is an ending credit balance (overapplied overhead) in the factory overhead account, it is disposed of by the entry shown below.

	Factory Overhead		XXX	
	Cost of Goods Sold			XXX
	Transfer of underapplied			
	overhead to cost of goods sold.			

To illustrate, the journal entry to dispose of Legend Guitars' December 31, 2012, underapplied overhead balance of $150 is as follows:

f.	Cost of Goods Sold		150	
	Factory Overhead			150
	Closed underapplied factory			
	overhead to cost of goods sold.			

Work in Process

During the period, Work in Process is increased (debited) for the following:

1. Direct materials cost
2. Direct labor cost
3. Applied factory overhead cost

To illustrate, the work in process account for Legend Guitars is shown in Exhibit 6. The balance of Work in Process on December 1, 2012 (beginning balance), was $3,000. As shown in Exhibit 6, this balance relates to Job 71, which was the only job in process on this date. During December, Work in Process was debited for the following:

1. Direct materials cost of $13,000 [transaction (b)] based on materials requisitions.
2. Direct labor cost of $11,000 [transaction (c)] based on time tickets.
3. Applied factory overhead of $4,250 [transaction (e)] based on the predetermined overhead rate of $5 per direct labor hour.

The preceding Work in Process debits are supported by the detail postings to job cost sheets for Jobs 71 and 72, as shown in Exhibit 6.

During December, Job 71 was completed. Upon completion, the product costs (direct materials, direct labor, factory overhead) are totaled. This total is divided by the number of units produced to determine the cost per unit. Thus, the 20 Jazz Series guitars produced as Job 71 cost $512.50 ($10,250/20) per guitar.

After completion, Job 71 is transferred from Work in Process to Finished Goods by the following entry:

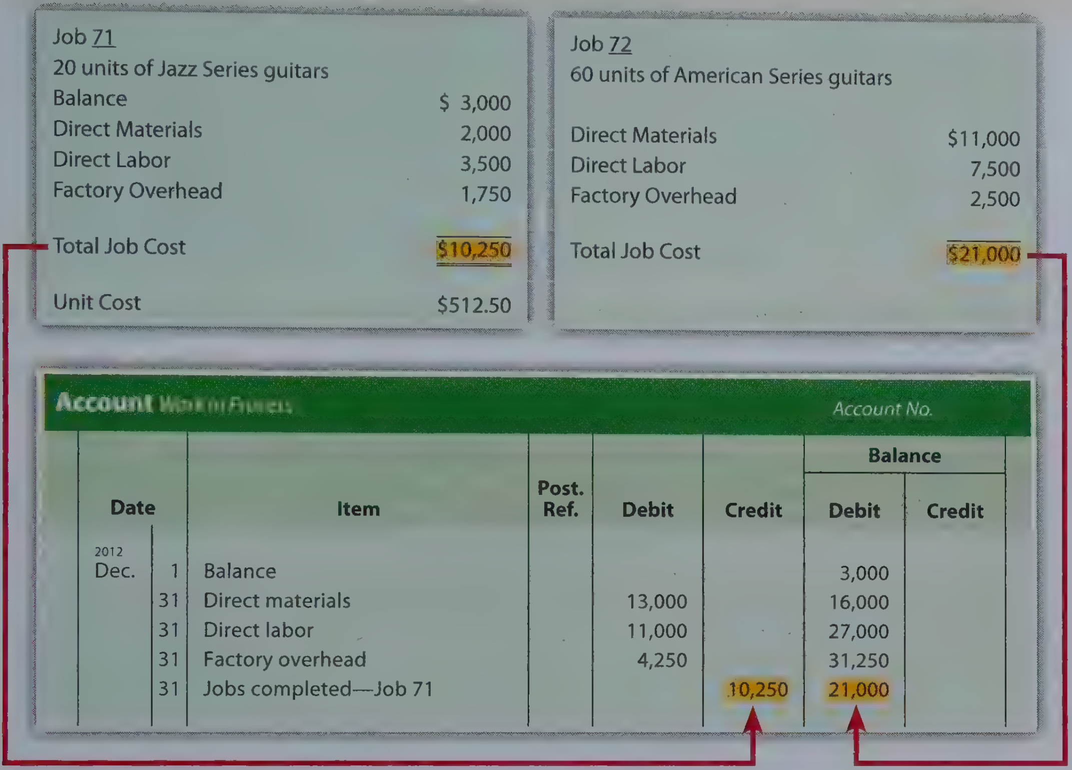
g.	Finished Goods		10,250	
	Work in Process			10,250
	Job 71 completed in December.			

Job 72 was started in December, but was not completed by December 31, 2012. Thus, Job 72 is still part of work in process on December 31, 2012. As shown in Exhibit 6, the balance of the job cost sheet for Job 72 ($21,000) is also the December 31, 2012, balance of Work in Process.

EXHIBIT 6

Job Cost Sheets and the Work in Process Controlling Account

Job Cost Sheets



Job 71 20 units of Jazz Series guitars	
Balance	$ 3,000
Direct Materials	2,000
Direct Labor	3,500
Factory Overhead	1,750
Total Job Cost	$10,250
Unit Cost	$512.50

Job 72 60 units of American Series guitars	
Direct Materials	$11,000
Direct Labor	7,500
Factory Overhead	2,500
Total Job Cost	$21,000

g.

Account Work in Process *Account No.*

Date		Item	Post. Ref.	Debit	Credit	Balance Debit	Balance Credit
2012 Dec.	1	Balance				3,000	
	31	Direct materials		13,000		16,000	
	31	Direct labor		11,000		27,000	
	31	Factory overhead		4,250		31,250	
	31	Jobs completed—Job 71			10,250	21,000	

Example Exercise 19-5 Job Costs

OBJ. 2

At the end of March, Hatch Company had completed Jobs 101 and 102. Job 101 is for 500 units, and Job 102 is for 1,000 units. Using the data from Example Exercises 19-1, 19-2, and 19-4, determine (a) the balance on the job cost sheets for Jobs 101 and 102 at the end of March and (b) the cost per unit for Jobs 101 and 102 at the end of March.

Follow My Example 19-5

a.

	Job 101	Job 102
Direct materials	$ 2,400	$ 4,200
Direct labor	12,800	7,200
Factory overhead	3,200	2,400
Total costs	$18,400	$13,800

b. Job 101 $36.80 = $18,400/500 units

Job 102 $13.80 = $13,800/1,000 units

Practice Exercises: **PE 19-5A, PE 19-5B**

Finished Goods

The finished goods account is a controlling account for the subsidiary **finished goods ledger** or *stock ledger*. Each account in the finished goods ledger contains cost data for the units manufactured, units sold, and units on hand.

Exhibit 7 illustrates the finished goods ledger account for Jazz Series guitars.

Exhibit 7 indicates that there were 40 Jazz Series guitars on hand on December 1, 2012. During the month, 20 additional Jazz guitars were completed and transferred to

EXHIBIT 7

Finished Goods Ledger Account

ITEM: *Jazz Series guitars*

Manufactured			Shipped			Balance			
Job Order No.	Quantity	Amount	Ship Order No.	Quantity	Amount	Date	Quantity	Amount	Unit Cost
						Dec. 1	40	$20,000	$500.00
			643	40	$20,000	9	—	—	—
71	20	$10,250				31	20	10,250	512.50

Finished Goods from the completion of Job 71. In addition, the beginning inventory of 40 Jazz guitars were sold during the month.

Sales and Cost of Goods Sold

During December, Legend Guitars sold 40 Jazz Series guitars for $850 each, generating total sales of $34,000 ($850 × 40 guitars). Exhibit 7 indicates that the cost of these guitars was $500 per guitar or a total cost of $20,000 ($500 × 40 guitars). The entries to record the sale and related cost of goods sold are as follows:

h.	Accounts Receivable		34,000	
	Sales			34,000
	Revenue received from guitars sold on account.			

i.	Cost of Goods Sold		20,000	
	Finished Goods			20,000
	Cost of 40 Jazz Series guitars sold.			

In a job order cost accounting system, the preparation of a statement of cost of goods manufactured, which was discussed in Chapter 18, is not necessary. This is because job order costing uses the perpetual inventory system and, thus, the cost of goods sold can be directly determined from the finished goods ledger as illustrated in Exhibit 7.

Example Exercise 19-6 Cost of Goods Sold

OBJ 2

Nejedly Company completed 80,000 units during the year at a cost of $680,000. The beginning finished goods inventory was 10,000 units at $80,000. Determine the cost of goods sold for 60,000 units, assuming a FIFO cost flow.

Follow My Example 19-6

$505,000 = $80,000 + (50,000 × $8.50*)
*Cost per unit of goods produced during the year = $8.50 = $680,000/80,000 units

Practice Exercises: **PE 19-6A, PE 19-6B**

Period Costs

Period costs are used in generating revenue during the current period, but are not involved in the manufacturing process. As discussed in Chapter 18, *period costs* are recorded as expenses of the current period as either selling or administrative expenses.

Selling expenses are incurred in marketing the product and delivering sold products to customers. Administrative expenses are incurred in managing the company, but

are not related to the manufacturing or selling functions. During December, Legend Guitars recorded the following selling and administrative expenses:

j.	Sales Salaries Expense		2,000	
	Office Salaries Expense		1,500	
	Salaries Payable			3,500
	Recorded December period costs.			

Summary of Cost Flows for Legend Guitars

Exhibit 8 shows the cost flows through the manufacturing accounts of Legend Guitars for December.

In addition, summary details of the following subsidiary ledgers are shown:

1. *Materials Ledger*—the subsidiary ledger for Materials.
2. *Job Cost Sheets*—the subsidiary ledger for Work in Process.
3. *Finished Goods Ledger*—the subsidiary ledger for Finished Goods.

Entries in the accounts shown in Exhibit 8 are identified by letters. These letters refer to the journal entries described and illustrated in the chapter. Entries (h) and (j) are not shown because they do not involve a flow of manufacturing costs.

As shown in Exhibit 8, the balances of Materials, Work in Process, and Finished Goods are supported by their subsidiary ledgers. These balances are as follows:

Controlling Account	Balance and Total of Related Subsidiary Ledger
Materials	$ 3,500
Work in Process	21,000
Finished Goods	10,250

The income statement for Legend Guitars is shown in Exhibit 9.

Job Order Costing for Decision Making

OBJ 3 Describe the use of job order cost information for decision making.

A job order cost accounting system accumulates and records product costs by jobs. The resulting total and unit product costs can be compared to similar jobs, compared over time, or compared to expected costs. In this way, a job order cost system can be used by managers for cost evaluation and control.

To illustrate, Exhibit 10 shows the direct materials used for Jobs 54 and 63 for Legend Guitars. The wood used in manufacturing guitars is measured in board feet. Since Jobs 54 and 63 produced the same type and number of guitars, the direct materials cost per unit should be about the same. However, the materials cost per guitar for Job 54 is $100, while for Job 63 it is $125. Thus, the materials costs are significantly more for Job 63.

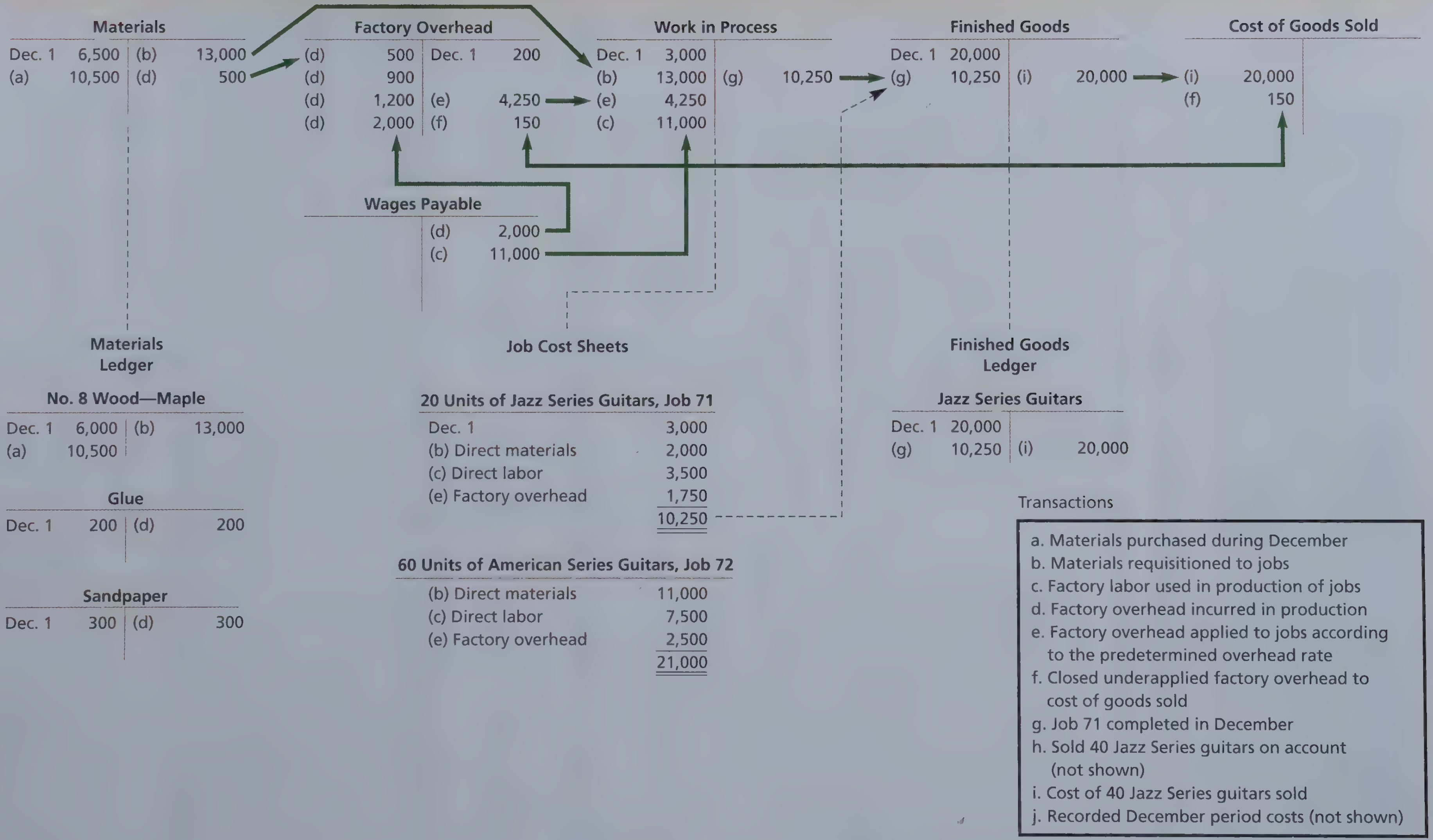
The job cost sheets shown in Exhibit 10 can be analyzed for possible reasons for the increased materials cost for Job 63. Since the materials price did not change ($10 per board foot), the increased materials cost must be related to wood consumption.

Major electric utilities such as Tennessee Valley Authority, Consolidated Edison Inc., and Pacific Gas and Electric Company use job order accounting to control the costs associated with major repairs and overhauls that occur during maintenance shutdowns.

Comparing wood consumed for Jobs 54 and 63 shows that 400 board feet were used in Job 54 to produce 40 guitars. In contrast, Job 63 used 500 board feet to produce the same number of guitars. Thus, an investigation should be undertaken to determine the cause of the extra 100 board feet used for Job 63. Possible explanations could include the following:

1. A new employee, who was not properly trained, cut the wood for Job 63. As a result, there was excess waste and scrap.
2. The wood used for Job 63 was purchased from a new supplier. The wood was of poor quality, which created excessive waste and scrap.

EXHIBIT 8 Flow of Manufacturing Costs for Legend Guitars



Transactions

a. Materials purchased during December
b. Materials requisitioned to jobs
c. Factory labor used in production of jobs
d. Factory overhead incurred in production
e. Factory overhead applied to jobs according to the predetermined overhead rate
f. Closed underapplied factory overhead to cost of goods sold
g. Job 71 completed in December
h. Sold 40 Jazz Series guitars on account (not shown)
i. Cost of 40 Jazz Series guitars sold
j. Recorded December period costs (not shown)

EXHIBIT 9

Income Statement of Legend Guitars

Legend Guitars
Income Statement
For the Month Ended December 31, 2012

Sales		$34,000
Cost of goods sold		20,150*
Gross profit		$13,850
Selling and administrative expenses:		
Sales salaries expense	$2,000	
Office salaries expense	1,500	
Total selling and administrative expenses		3,500
Income from operations		$10,350

*$20,150 = ($500 × 40 guitars) + $150 underapplied factory overhead

3. The cutting tools needed repair and were not properly maintained. As a result, the wood was miscut, which created excessive waste and scrap.
4. The instructions attached to the job were incorrect. The wood was cut according to the instructions. The incorrect instructions were discovered later in assembly. As a result, the wood had to be recut and the initial cuttings scrapped.

Job Order Cost Systems for Professional Service Businesses

OBJ. 4 Describe the flow of costs for a service business that uses a job order cost accounting system.

A job order cost accounting system may be used for a professional service business. For example, an advertising agency, an attorney, and a physician provide services to individual customers, clients, or patients. In such cases, the customer, client, or patient can be viewed as a job for which costs are accumulated and reported.

The primary product costs for a service business are direct labor and overhead costs. Any materials or supplies used in rendering services are normally insignificant. As a result, materials and supply costs are included as part of the overhead cost.

Like a manufacturing business, direct labor and overhead costs of rendering services to clients are accumulated in a work in process account. *Work in Process* is supported by a cost ledger with a job cost sheet for each client.

EXHIBIT 10

Comparing Data from Job Cost Sheets

Job 54
Item: 40 Jazz Series guitars

	Materials Quantity (board feet)	Materials Price	Materials Amount
Direct materials:			
No. 8 Wood—Maple	400	$10.00	$4,000
Direct materials per guitar			$ 100*

*$4,000/40

Job 63
Item: 40 Jazz Series guitars

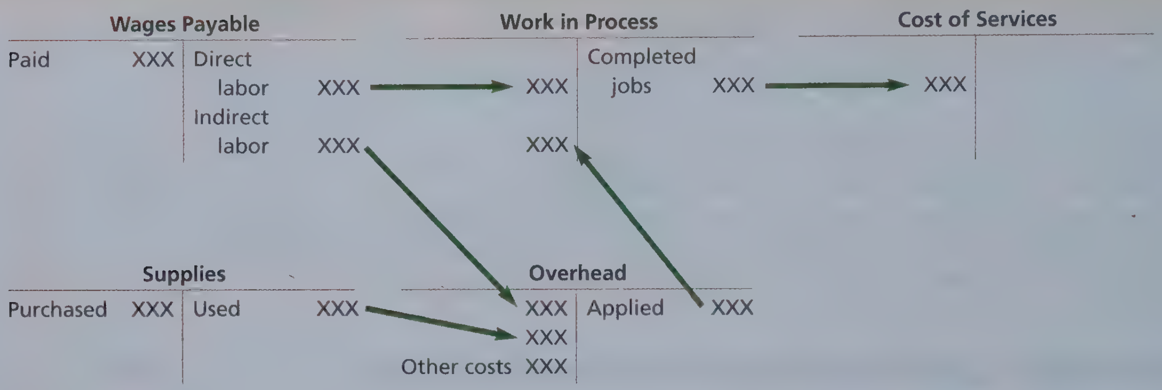
	Materials Quantity (board feet)	Materials Price	Materials Amount
Direct materials:			
No. 8 Wood—Maple	500	$10.00	$5,000
Direct materials per guitar			$ 125*

*$5,000/40

When a job is completed and the client is billed, the costs are transferred to a cost of services account. *Cost of Services* is similar to the cost of merchandise sold account for a merchandising business or the cost of goods sold account for a manufacturing business. A finished goods account and related finished goods ledger are not necessary. This is because the revenues for the services are recorded only after the services are provided.

The flow of costs through a service business using a job order cost accounting system is shown in Exhibit 11.

EXHIBIT 11 **Flow of Costs Through a Service Business**



In practice, other considerations unique to service businesses may need to be considered. For example, a service business may bill clients on a weekly or monthly basis rather than when a job is completed. In such cases, a portion of the costs related to each billing is transferred from the work in process account to the cost of services account. A service business may also bill clients for services in advance, which would be accounted for as deferred revenue until the services are completed.

Business Connection

MAKING MONEY IN THE MOVIE BUSINESS

Movie making is a high risk venture. The movie must be produced and marketed before the first dollar is received from the box office. If the movie is a hit, then all is well; but if the movie is a bomb, money will be lost. This is termed a "blockbuster" business strategy and is common in businesses that have large up-front costs in the face of uncertain follow-up revenues.

The profitability of a movie depends on its revenue and cost. A movie's cost is determined using job order costing; however, how costs are assigned to a movie is often complex and may be subject to disagreement. For example, studios often negotiate payments to producers and actors based on a percentage of the film's gross revenues. This is termed "contingent compensation." As movies become hits, compensation costs increase in proportion to the movie's revenues.

As the dollars involved get bigger, disagreements often develop over the amount of contingent compensation. For example, the producer of the 2002 hit movie *Chicago* sued **Miramax Film Corp.** for failing to include foreign receipts and DVD sales in the revenue that was used to determine his payments. The controversial nature of contingent compensation is illustrated by the suit's claim that the accounting for contingent compensation leads to confusing and meaningless results.

At a Glance 19

OBJ. 1 Describe cost accounting systems used by manufacturing businesses.

Key Points A cost accounting system accumulates product costs. The two primary cost accounting systems are job order and process cost systems. Job order cost systems accumulate costs for each quantity of product that passes through the factory. Process cost systems accumulate costs for each department or process within the factory.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe a cost accounting system.		
• Describe a job order cost system.		
• Describe a process cost system.		

OBJ. 2 Describe and illustrate a job order cost accounting system.

Key Points A job order cost system accumulates costs for each quantity of product, or "job," that passes through the factory. Direct materials, direct labor, and factory overhead are accumulated on the job cost sheet, which is the subsidiary cost ledger for each job. Direct materials and direct labor are assigned to individual jobs based on the quantity used. Factory overhead costs are assigned to each job based on an activity base that reflects the use of factory overhead costs.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the flow of materials and how materials costs are assigned.		
• Prepare the journal entry to record materials used in production.	**EE19-1**	**PE19-1A, 19-1B**
• Describe how factory labor hours are recorded and how labor costs are assigned.		
• Prepare the journal entry to record factory labor used in production.	**EE19-2**	**PE19-2A, 19-2B**
• Describe and illustrate how factory overhead costs are accumulated and assigned.	**EE19-3** **EE19-4**	**PE19-3A, 19-3B** **PE19-4A, 19-4B**
• Compute the predetermined overhead rate.	**EE19-4**	**PE19-4A, 19-4B**
• Describe and illustrate how to dispose of the balance in the factory overhead account.		
• Describe and illustrate how costs are accumulated for work in process and finished goods inventory.	**EE19-5**	**PE19-5A, 19-5B**
• Describe how costs are assigned to cost of goods sold.	**EE19-6**	**PE19-6A, 19-6B**
• Describe and illustrate the flow of costs.		

OBJ. 3 Describe the use of job order cost information for decision making.

Key Points Job order cost systems can be used to evaluate cost performance. Unit costs can be compared over time to determine if product costs are staying within expected ranges.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe and illustrate how job cost sheets can be used to investigate possible reasons for increased product costs.		

OBJ. 4 Describe the flow of costs for a service business that uses a job order cost accounting system.

Key Points Job order cost accounting systems can be used by service businesses to plan and control operations. Since the product is a service, the focus is on direct labor and overhead costs. The costs of providing a service are accumulated in a work in process account and transferred to a cost of services account upon completion.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe how service businesses use a job order cost system.		

Key Terms

activity base (880)
activity-based costing (881)
cost accounting systems (874)
cost allocation (880)
finished goods ledger (885)
job cost sheets (877)
job order cost system (874)
materials ledger (875)
materials requisition (877)
overapplied factory overhead (882)
predetermined factory overhead rate (880)
process cost system (874)
receiving report (877)
time tickets (878)
underapplied factory overhead (882)

Illustrative Problem

Wildwing Entertainment, Inc., specializes in producing and packaging digital video discs (DVDs) for the video entertainment industry. Wildwing uses a job order cost system. The following data summarize the operations related to production for March, the first month of operations:

a. Materials purchased on account, $15,500.

b. Materials requisitioned and labor used:

	Materials	Factory Labor
Job No. 100	$2,650	$1,770
Job No. 101	1,240	650
Job No. 102	980	420
Job No. 103	3,420	1,900
Job No. 104	1,000	500
Job No. 105	2,100	1,760
For general factory use	450	650

c. Factory overhead costs incurred on account, $2,700.

d. Depreciation of machinery, $1,750.

e. Factory overhead is applied at a rate of 70% of direct labor cost.

f. Jobs completed: Nos. 100, 101, 102, 104.

g. Jobs 100, 101, and 102 were shipped, and customers were billed for $8,100, $3,800, and $3,500, respectively.

Instructions

1. Journalize the entries to record the transactions identified above.
2. Determine the account balances for Work in Process and Finished Goods.
3. Prepare a schedule of unfinished jobs to support the balance in the work in process account.
4. Prepare a schedule of completed jobs on hand to support the balance in the finished goods account.

Solution

1. a.	Materials	15,500	
	Accounts Payable		15,500
b.	Work in Process	11,390	
	Materials		11,390
	Work in Process	7,000	
	Wages Payable		7,000
	Factory Overhead	1,100	
	Materials		450
	Wages Payable		650
c.	Factory Overhead	2,700	
	Accounts Payable		2,700
d.	Factory Overhead	1,750	
	Accumulated Depreciation—Machinery		1,750
e.	Work in Process	4,900	
	Factory Overhead (70% of $7,000)		4,900
f.	Finished Goods	11,548	
	Work in Process		11,548

Computation of the cost of jobs finished:

Job	Direct Materials	Direct Labor	Factory Overhead	Total
Job No. 100	$2,650	$1,770	$1,239	$ 5,659
Job No. 101	1,240	650	455	2,345
Job No. 102	980	420	294	1,694
Job No. 104	1,000	500	350	1,850
				$11,548

g.	Accounts Receivable	15,400	
	Sales		15,400
	Cost of Goods Sold	9,698	
	Finished Goods		9,698

Cost of jobs sold computation:

Job No. 100	$5,659
Job No. 101	2,345
Job No. 102	1,694
	$9,698

2. Work in Process: $11,742 ($11,390 + $7,000 + $4,900 – $11,548)

   Finished Goods: $1,850 ($11,548 – $9,698)

3. **Schedule of Unfinished Jobs**

Job	Direct Materials	Direct Labor	Factory Overhead	Total
Job No. 103	$3,420	$1,900	$1,330	$ 6,650
Job No. 105	2,100	1,760	1,232	5,092
Balance of Work in Process, March 31				$11,742

4. **Schedule of Completed Jobs**

Job No. 104:	
Direct materials	$1,000
Direct labor	500
Factory overhead	350
Balance of Finished Goods, March 31	$1,850

Discussion Questions

1. a. Name two principal types of cost accounting systems.
   b. Which system provides for a separate record of each particular quantity of product that passes through the factory?
   c. Which system accumulates the costs for each department or process within the factory?
2. What kind of firm would use a job order cost system?
3. How does the use of the materials requisition help control the issuance of materials from the storeroom?
4. What document is the source for (a) debiting the accounts in the materials ledger and (b) crediting the accounts in the materials ledger?
5. What is a job cost sheet?
6. a. Differentiate between the clock card and the time ticket.
   b. Why should the total time reported on an employee's time tickets for a payroll period be compared with the time reported on the employee's clock cards for the same period?
7. Discuss how the predetermined factory overhead rate can be used in job order cost accounting to assist management in pricing jobs.
8. a. How is a predetermined factory overhead rate calculated?
   b. Name three common bases used in calculating the rate.
9. a. What is (1) overapplied factory overhead and (2) underapplied factory overhead?
   b. If the factory overhead account has a debit balance, was factory overhead underapplied or overapplied?
   c. If the factory overhead account has a credit balance at the end of the first month of the fiscal year, where will the amount of this balance be reported on the interim balance sheet?
10. Describe how a job order cost system can be used for professional service businesses.

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 2 **EE 19-1** *p. 877*

PE 19-1A Issuance of materials

On April 8, Darling Company purchased 65,000 units of raw materials at $7 per unit. On April 20, raw materials were requisitioned for production as follows: 26,000 units for Job 50 at $6 per unit and 30,000 units for Job 51 at $7 per unit. Journalize the entry on April 8 to record the purchase and on April 20 to record the requisition from the materials storeroom.

OBJ. 2 **EE 19-1** *p. 877*

PE 19-1B Issuance of materials

On June 3, Plowers Company purchased 8,000 units of raw materials at $10 per unit. On June 22, raw materials were requisitioned for production as follows: 2,400 units for Job 30 at $8 per unit and 2,600 units for Job 32 at $10 per unit. Journalize the entry on June 3 to record the purchase and on June 22 to record the requisition from the materials storeroom.

OBJ. 2 **EE 19-2** *p. 879*

PE 19-2A Direct labor costs

During April, Darling Company accumulated 12,000 hours of direct labor costs on Job 50 and 15,000 hours on Job 51. The total direct labor was incurred at a rate of $21.50 per direct labor hour for Job 50 and $24 per direct labor hour for Job 51. Journalize the entry to record the flow of labor costs into production during April.

OBJ. 2 **EE 19-2** *p. 879*

PE 19-2B Direct labor costs

During June, Plowers Company accumulated 2,400 hours of direct labor costs on Job 30 and 3,000 hours on Job 32. The total direct labor was incurred at a rate of $22 per direct labor hour for Job 30 and $20 per direct labor hour for Job 32. Journalize the entry to record the flow of labor costs into production during June.

OBJ. 2 **EE 19-3** *p. 880*

PE 19-3A Factory overhead costs

During April, Darling Company incurred factory overhead costs as follows: indirect materials, $30,000; indirect labor, $78,000; utilities cost, $7,000; and factory depreciation, $55,000. Journalize the entry to record the factory overhead incurred during April.

OBJ. 2 **EE 19-3** *p. 880*

PE 19-3B Factory overhead costs

During June, Plowers Company incurred factory overhead costs as follows: indirect materials, $14,000; indirect labor, $15,000; utilities cost, $6,500; and factory depreciation, $14,500. Journalize the entry to record the factory overhead incurred during June.

OBJ. 2 **EE 19-4** *p. 883*

PE 19-4A Applying factory overhead

Darling Company estimates that total factory overhead costs will be $750,000 for the year. Direct labor hours are estimated to be 300,000. For Darling Company, (a) determine the predetermined factory overhead rate, (b) determine the amount of factory overhead applied to Jobs 50 and 51 in April using the data on direct labor hours from Practice Exercise 19-2A, and (c) prepare the journal entry to apply factory overhead to both jobs in April according to the predetermined overhead rate.

Learning Objectives *Example Exercises*

OBJ. 2 **EE 19-4** *p. 883*

PE 19-4B Applying factory overhead

Plowers Company estimates that total factory overhead costs will be $480,000 for the year. Direct labor hours are estimated to be 60,000. For Plowers Company, (a) determine the predetermined factory overhead rate, (b) determine the amount of factory overhead applied to Jobs 30 and 32 in June using the data on direct labor hours from Practice Exercise 19-2B, and (c) prepare the journal entry to apply factory overhead to both jobs in June according to the predetermined overhead rate.

OBJ. 2 **EE 19-5** *p. 885*

PE 19-5A Job costs

At the end of April, Darling Company had completed Jobs 50 and 51. Job 50 is for 10,000 units, and Job 51 is for 12,500 units. Using the data from Practice Exercises 19-1A, 19-2A, and 19-4A, determine (a) the balance on the job cost sheets for Jobs 50 and 51 at the end of April and (b) the cost per unit for Jobs 50 and 51 at the end of April.

OBJ. 2 **EE 19-5** *p. 885*

PE 19-5B Job costs

At the end of June, Plowers Company had completed Jobs 30 and 32. Job 30 is for 6,000 units, and Job 32 is for 6,875 units. Using the data from Practice Exercises 19-1B, 19-2B, and 19-4B, determine (a) the balance on the job cost sheets for Jobs 30 and 32 at the end of June and (b) the cost per unit for Jobs 30 and 32 at the end of June.

OBJ. 2 **EE 19-6** *p. 886*

PE 19-6A Cost of goods sold

Curl Company completed 425,000 units during the year at a cost of $20,187,500. The beginning finished goods inventory was 35,000 units at $1,470,000. Determine the cost of goods sold for 435,000 units, assuming a FIFO cost flow.

OBJ. 2 **EE 19-6** *p. 886*

PE 19-6B Cost of goods sold

Skeleton Company completed 155,000 units during the year at a cost of $2,418,000. The beginning finished goods inventory was 15,000 units at $225,000. Determine the cost of goods sold for 160,000 units, assuming a FIFO cost flow.

Exercises

OBJ. 2

EX 19-1 Transactions in a job order cost system

Five selected transactions for the current month are indicated by letters in the following T accounts in a job order cost accounting system:

Materials	
	(a)

Work in Process	
(a) (b) (c)	(d)

Wages Payable	
	(b)

Finished Goods	
(d)	(e)

Factory Overhead	
(a) (b)	(c)

Cost of Goods Sold	
(e)	

Describe each of the five transactions.

OBJ. 2

✓ c. $883,000

EX 19-2 Cost flow relationships

The following information is available for the first month of operations of Icahn Inc., a manufacturer of art and craft items:

Sales	$1,680,000
Gross profit	450,000
Indirect labor	150,000
Indirect materials	65,000
Other factory overhead	30,000
Materials purchased	850,000
Total manufacturing costs for the period	1,850,000
Materials inventory, end of period	63,000

Using the above information, determine the following missing amounts:

a. Cost of goods sold

b. Direct materials cost

c. Direct labor cost

OBJ. 2

✓ b. $1,960

EX 19-3 Cost of materials issuances under the FIFO method

An incomplete subsidiary ledger of wire cable for June is as follows:

RECEIVED			ISSUED			BALANCE			
Receiving Report Number	Quantity	Unit Price	Materials Requisition Number	Quantity	Amount	Date	Quantity	Unit Price	Amount
						June 1	350	$10.00	$3,500
26	250	$12.00				June 2	____	____	____
			103	380		June 6	____	____	____
32	160	14.00				June 12	____	____	____
			111	240		June 21	____	____	____

a. Complete the materials issuances and balances for the wire cable subsidiary ledger under FIFO.

b. Determine the balance of wire cable at the end of June.

c. Journalize the summary entry to transfer materials to work in process.

d. Explain how the materials ledger might be used as an aid in maintaining inventory quantities on hand.

OBJ. 2

EX 19-4 Entry for issuing materials

Materials issued for the current month are as follows:

Requisition No.	Material	Job No.	Amount
201	Steel	110	$30,500
202	Plastic	112	23,500
203	Glue	Indirect	2,000
204	Rubber	123	1,750
205	Aluminum	128	55,000

Journalize the entry to record the issuance of materials.

OBJ. 2

✓ c. fabric, $53,200

EX 19-5 Entries for materials

Gorman Furniture Company manufactures furniture. Gorman uses a job order cost system. Balances on April 1 from the materials ledger are as follows:

Fabric	$40,000
Polyester filling	12,000
Lumber	89,500
Glue	3,900

The materials purchased during April are summarized from the receiving reports as follows:

Fabric	$201,600
Polyester filling	280,000
Lumber	550,000
Glue	19,500

Materials were requisitioned to individual jobs as follows:

	Fabric	Polyester Filling	Lumber	Glue	Total
Job 101	$ 76,000	$ 96,000	$256,000		$ 428,000
Job 102	58,400	86,400	224,000		368,800
Job 103	54,000	70,500	125,000		249,500
Factory overhead—indirect materials				$20,800	20,800
Total	$188,400	$252,900	$605,000	$20,800	$1,067,100

The glue is not a significant cost, so it is treated as indirect materials (factory overhead).

a. Journalize the entry to record the purchase of materials in April.

b. Journalize the entry to record the requisition of materials in April.

c. Determine the April 30 balances that would be shown in the materials ledger accounts.

OBJ. 2

EX 19-6 Entry for factory labor costs

A summary of the time tickets for the current month follows:

Job No.	Amount	Job No.	Amount
301	$ 3,200	Indirect	$ 4,500
302	2,450	312	3,450
304	3,875	314	3,760
306	14,500	315	12,500

Journalize the entry to record the factory labor costs.

OBJ. 2

EX 19-7 Entry for factory labor costs

The weekly time tickets indicate the following distribution of labor hours for three direct labor employees:

	Hours			
	Job 301	Job 302	Job 303	Process Improvement
Ken Thain	13	13	10	4
Dick Lewis	12	13	11	4
John Fuld	8	15	12	5

The direct labor rate earned per hour by the three employees is as follows:

Ken Thain	$30.00
Dick Lewis	34.00
John Fuld	25.00

The process improvement category includes training, quality improvement, housekeeping, and other indirect tasks.

a. Journalize the entry to record the factory labor costs for the week.

b. Assume that Jobs 301 and 302 were completed but not sold during the week and that Job 303 remained incomplete at the end of the week. How would the direct labor costs for all three jobs be reflected on the financial statements at the end of the week?

OBJ. 2

EX 19-8 Entries for direct labor and factory overhead

Kraus Industries Inc. manufactures recreational vehicles. Kraus uses a job order cost system. The time tickets from July jobs are summarized below.

Job 501	$4,200
Job 502	3,200
Job 503	2,870
Job 504	3,650
Factory supervision	2,450

Factory overhead is applied to jobs on the basis of a predetermined overhead rate of $12 per direct labor hour. The direct labor rate is $30 per hour.

a. Journalize the entry to record the factory labor costs.

b. Journalize the entry to apply factory overhead to production for July.

OBJ. 2

✔ b. $38.00 per direct labor hour

EX 19-9 Factory overhead rates, entries, and account balance

Bryson Company operates two factories. The company applies factory overhead to jobs on the basis of machine hours in Factory 1 and on the basis of direct labor hours in Factory 2. Estimated factory overhead costs, direct labor hours, and machine hours are as follows:

	Factory 1	Factory 2
Estimated factory overhead cost for fiscal year beginning November 1	$660,000	$798,000
Estimated direct labor hours for year		21,000
Estimated machine hours for year	30,000	
Actual factory overhead costs for November	$53,200	$72,800
Actual direct labor hours for November		2,000
Actual machine hours for November	2,184	

a. Determine the factory overhead rate for Factory 1.

b. Determine the factory overhead rate for Factory 2.

c. Journalize the entries to apply factory overhead to production in each factory for November.

d. Determine the balances of the factory accounts for each factory as of November 30, and indicate whether the amounts represent overapplied or underapplied factory overhead.

OBJ. 2

EX 19-10 Predetermined factory overhead rate

Pierpont Engine Shop uses a job order cost system to determine the cost of performing engine repair work. Estimated costs and expenses for the coming period are as follows:

Engine parts	$ 700,000
Shop direct labor	520,000
Shop and repair equipment depreciation	38,000
Shop supervisor salaries	100,000
Shop property tax	18,000
Shop supplies	13,000
Advertising expense	14,240
Administrative office salaries	60,000
Administrative office depreciation expense	8,000
Total costs and expenses	$1,471,240

The average shop direct labor rate is $20 per hour.
Determine the predetermined shop overhead rate per direct labor hour.

OBJ. 2

✔ a. $210 per hour

EX 19-11 Predetermined factory overhead rate

Barley Medical Center has a single operating room that is used by local physicians to perform surgical procedures. The cost of using the operating room is accumulated by each patient procedure and includes the direct materials costs (drugs and medical devices),

physician surgical time, and operating room overhead. On January 1 of the current year, the annual operating room overhead is estimated to be:

Disposable supplies	$210,000
Depreciation expense	32,000
Utilities	16,000
Nurse salaries	248,000
Technician wages	82,000
Total operating room overhead	$588,000

The overhead costs will be assigned to procedures based on the number of surgical room hours. Barley Medical Center expects to use the operating room an average of eight hours per day, seven days per week. In addition, the operating room will be shut down two weeks per year for general repairs.

a. Determine the predetermined operating room overhead rate for the year.

b. Dan Baliga had a four-hour procedure on January 15. How much operating room overhead would be charged to his procedure, using the rate determined in part (a)?

c. During January, the operating room was used 196 hours. The actual overhead costs incurred for January were $40,000. Determine the overhead under- or overapplied for the period.

OBJ. 2
✔ b. $23,100

EX 19-12 Entry for jobs completed; cost of unfinished jobs

The following account appears in the ledger after only part of the postings have been completed for March:

Work in Process	
Balance, March 1	$ 18,000
Direct materials	122,500
Direct labor	145,000
Factory overhead	80,000

Jobs finished during March are summarized as follows:

Job 320	$72,400	Job 327	$ 46,200
Job 326	79,200	Job 350	144,600

a. Journalize the entry to record the jobs completed.

b. Determine the cost of the unfinished jobs at March 31.

OBJ. 2
✔ d. $29,305

EX 19-13 Entries for factory costs and jobs completed

Cox Publishing Inc. began printing operations on August 1. Jobs 101 and 102 were completed during the month, and all costs applicable to them were recorded on the related cost sheets. Jobs 103 and 104 are still in process at the end of the month, and all applicable costs except factory overhead have been recorded on the related cost sheets. In addition to the materials and labor charged directly to the jobs, $1,000 of indirect materials and $12,000 of indirect labor were used during the month. The cost sheets for the four jobs entering production during the month are as follows, in summary form:

Job 101	
Direct materials	10,300
Direct labor	4,000
Factory overhead	3,000
Total	17,300

Job 102	
Direct materials	4,830
Direct labor	4,100
Factory overhead	3,075
Total	12,005

Job 103	
Direct materials	14,500
Direct labor	4,320
Factory overhead	

Job 104	
Direct materials	2,920
Direct labor	580
Factory overhead	

Journalize the summary entry to record each of the following operations for August (one entry for each operation):

a. Direct and indirect materials used.

b. Direct and indirect labor used.

c. Factory overhead applied to all four jobs (a single overhead rate is used based on direct labor cost).

d. Completion of Jobs 101 and 102.

OBJ. 2

✔ a. Income from operations, $151,800

EX 19-14 Financial statements of a manufacturing firm

The following events took place for Fed Inc. during October 2012, the first month of operations as a producer of road bikes:

- Purchased $427,000 of materials.
- Used $367,500 of direct materials in production.
- Incurred $315,000 of direct labor wages.
- Applied factory overhead at a rate of 80% of direct labor cost.
- Transferred $892,500 of work in process to finished goods.
- Sold goods with a cost of $848,750.
- Sold goods for $1,500,000.
- Incurred $367,500 of selling expenses.
- Incurred $131,950 of administrative expenses.

a. Prepare the October income statement for Fed. Assume that Fed uses the perpetual inventory method.

b. Determine the inventory balances at the end of the first month of operations.

OBJ. 3

EX 19-15 Decision making with job order costs

Moss Manufacturing Inc. is a job shop. The management of Moss Manufacturing uses the cost information from the job sheets to assess their cost performance. Information on the total cost, product type, and quantity of items produced is as follows:

Date	Job No.	Product	Quantity	Amount
Jan. 2	1	XKR1	300	$ 6,600
Jan. 15	26	M-Z4	1,300	11,700
Feb. 3	34	M-Z4	1,100	14,300
Mar. 7	44	XKR1	460	7,360
Mar. 24	51	SL500	1,850	12,950
May 19	62	SL500	2,200	19,800
June 12	76	XKR1	400	4,800
Aug. 18	80	SL500	2,750	30,250
Sept. 2	88	M-Z4	900	9,000
Nov. 14	96	XKR1	540	4,320
Dec. 12	102	SL500	2,350	32,900

a. Develop a graph for *each* product (three graphs), with Job Number (in date order) on the horizontal axis and Unit Cost on the vertical axis. Use this information to determine Moss Manufacturing's cost performance over time for the three products.

b. What additional information would you require to investigate Moss Manufacturing's cost performance more precisely?

OBJ. 3

EX 19-16 Decision making with job order costs

Lightner Trophies Inc. uses a job order cost system for determining the cost to manufacture award products (plaques and trophies). Among the company's products is an engraved plaque that is awarded to participants who complete a training program at a local business. The company sells the plaque to the local business for $180 each.

Each plaque has a brass plate engraved with the name of the participant. Engraving requires approximately 30 minutes per name. Improperly engraved names must be redone. The plate is screwed to a walnut backboard. This assembly takes approximately 25 minutes per unit. Improper assembly must be redone using a new walnut backboard.

During the first half of the year, the university had two separate executive education classes. The job cost sheets for the two separate jobs indicated the following information:

Job 101	**April 12**		
	Cost per Unit	**Units**	**Job Cost**
Direct materials:			
Wood	$30.00/unit	66 units	$1,980.00
Brass	25.00/unit	66 units	1,650.00
Engraving labor	75.00/hr.	33 hrs.	2,475.00
Assembly labor	50.00/hr.	27.5 hrs.	1,375.00
Factory overhead	40.00/hr.	60.5 hrs.	2,420.00
			$9,900.00
Plaques shipped			÷ 66
Cost per plaque			$ 150.00

Job 105	**May 6**		
	Cost per Unit	**Units**	**Job Cost**
Direct materials:			
Wood	$30.00/unit	36 units	$1,080.00
Brass	25.00/unit	36 units	900.00
Engraving labor	75.00/hr.	18 hrs.	1,350.00
Assembly labor	50.00/hr.	15 hrs.	750.00
Factory overhead	40.00/hr.	33 hrs.	1,320.00
			$5,400.00
Plaques shipped			÷ 30
Cost per plaque			$ 180.00

a. Why did the cost per plaque increase from $150.00 to $180.00?

b. What improvements would you recommend for Lightner Trophies Inc.?

OBJ. 4

✔ b. Overapplied, $3,000

EX 19-17 Job order cost accounting entries for a service business

The law firm of Yoo and Sachs accumulates costs associated with individual cases, using a job order cost system. The following transactions occurred during July:

July 3. Charged 500 hours of professional (lawyer) time to the Liddy Co. breech of contract suit to prepare for the trial, at a rate of $150 per hour.

9. Reimbursed travel costs to employees for depositions related to the Liddy case, $18,500.

10. Charged 250 hours of professional time for the Liddy trial at a rate of $225 per hour.

15. Received invoice from consultants Mack and Corzine for $55,000 for expert testimony related to the Liddy trial.

22. Applied office overhead at a rate of $60 per professional hour charged to the Liddy case.

31. Paid secretarial and administrative salaries of $32,000 for the month.

31. Used office supplies for the month, $10,000.

31. Paid professional salaries of $126,000 for the month.

31. Billed Liddy $365,000 for successful defense of the case.

a. Provide the journal entries for each of the above transactions.

b. How much office overhead is over- or underapplied?

c. Determine the gross profit on the Liddy case, assuming that over- or underapplied office overhead is closed monthly to cost of services.

OBJ. 4

✔ d. Dr. Cost of Services, $1,225,500

EX 19-18 Job order cost accounting entries for a service business

The Pedersen Company provides advertising services for clients across the nation. The Pedersen Company is presently working on four projects, each for a different client. The Pedersen Company accumulates costs for each account (client) on the basis of both direct costs and allocated indirect costs. The direct costs include the charged time of professional personnel and media purchases (air time and ad space). Overhead is allocated to each project as a percentage of media purchases. The predetermined overhead rate is 60% of media purchases.

On March 1, the four advertising projects had the following accumulated costs:

	March 1 Balances
Hedge Bank	$120,000
Sullivan Airlines	36,000
Tesley Hotels	84,000
Wakelin Beverages	51,000
	$291,000

During March, The Pedersen Company incurred the following direct labor and media purchase costs related to preparing advertising for each of the four accounts:

	Direct Labor	Media Purchases
Hedge Bank	$ 84,000	$315,000
Sullivan Airlines	37,500	277,500
Tesley Hotels	165,000	202,500
Wakelin Beverages	187,500	151,500
Total	$474,000	$946,500

At the end of March, both the Hedge Bank and Sullivan Airlines campaigns were completed. The costs of completed campaigns are debited to the cost of services account.

Journalize the summary entry to record each of the following for the month:

a. Direct labor costs

b. Media purchases

c. Overhead applied

d. Completion of Hedge Bank and Sullivan Airlines campaigns

Problems Series A

OBJ. 2

PR 19-1A Entries for costs in a job order cost system

GIA Co. uses a job order cost system. The following data summarize the operations related to production for August:

a. Materials purchased on account, $660,000.

b. Materials requisitioned, $577,500, of which $73,500 was for general factory use.

c. Factory labor used, $681,500, of which $95,500 was indirect.

d. Other costs incurred on account were for factory overhead, $154,320; selling expenses, $244,440; and administrative expenses, $152,250.

e. Prepaid expenses expired for factory overhead were $30,450; for selling expenses, $25,830; and for administrative expenses, $18,690.

f. Depreciation of office building was $88,200; of office equipment, $45,150; and of factory equipment, $30,450.

g. Factory overhead costs applied to jobs, $375,500.

h. Jobs completed, $871,800.

i. Cost of goods sold, $860,000.

Instructions

Journalize the entries to record the summarized operations.

OBJ. 2

✔ 3. Work in Process balance, $30,698

PR 19-2A Entries and schedules for unfinished jobs and completed jobs

Sinatra Industries, Inc. uses a job order cost system. The following data summarize the operations related to production for June 2012, the first month of operations:

a. Materials purchased on account, $32,760.

b. Materials requisitioned and factory labor used:

Job	Materials	Factory Labor
301	$3,290	$3,080
302	4,025	4,160
303	2,660	2,080
304	9,030	7,640
305	5,740	5,810
306	4,170	3,710
For general factory use	1,200	4,550

c. Factory overhead costs incurred on account, $6,300.

d. Depreciation of machinery and equipment, $2,200.

e. The factory overhead rate is $58 per machine hour. Machine hours used:

Job	Machine Hours
301	26
302	38
303	30
304	80
305	40
306	26
Total	240

f. Jobs completed: 301, 302, 303, and 305.

g. Jobs were shipped and customers were billed as follows: Job 301, $9,150; Job 302, $12,350; Job 303, $16,600.

Instructions

1. Journalize the entries to record the summarized operations.
2. Post the appropriate entries to T accounts for Work in Process and Finished Goods, using the identifying letters as dates. Insert memo account balances as of the end of the month.
3. Prepare a schedule of unfinished jobs to support the balance in the work in process account.
4. Prepare a schedule of completed jobs on hand to support the balance in the finished goods account.

OBJ. 2, 3

PR 19-3A Job order cost sheet

If the working papers correlating with the textbook are not used, omit Problem 19-3A.

Carlin Furniture Company refinishes and reupholsters furniture. Carlin uses a job order cost system. When a prospective customer asks for a price quote on a job, the estimated cost data are inserted on an unnumbered job cost sheet. If the offer is accepted, a number is assigned to the job, and the costs incurred are recorded in the usual manner on the job cost sheet. After the job is completed, reasons for the variances between the estimated and actual costs are noted on the sheet. The data are then available to management in evaluating the efficiency of operations and in preparing quotes on future jobs. On July 6, 2012, an estimate of $1,880.00 for reupholstering a sofa and loveseat was given to Justin Flannigan. The estimate was based on the following data:

Estimated direct materials:	
30 meters at $30 per meter	$ 900.00
Estimated direct labor:	
20 hours at $28 per hour	560.00
Estimated factory overhead (75% of direct labor cost)	420.00
Total estimated costs	$1,880.00
Markup (30% of production costs)	564.00
Total estimate	$2,444.00

On July 10, the sofa and loveseat were picked up from the residence of Justin Flannigan, 310 Suzuki Drive, Lubbock, TX, with a commitment to return it on September 7. The job was completed on September 3.

The related materials requisitions and time tickets are summarized as follows:

Materials Requisition No.	Description	Amount
310	15 meters at $30	$450
312	19 meters at $30	570

Time Ticket No.	Description	Amount
H50	10 hours at $28	$280
H55	14 hours at $28	392

Instructions

1. Complete that portion of the job order cost sheet that would be prepared when the estimate is given to the customer.
2. Assign number 12-211 to the job, record the costs incurred, and complete the job order cost sheet. Comment on the reasons for the variances between actual costs and estimated costs. For this purpose, assume that four meters of materials were spoiled, the factory overhead rate has been proved to be satisfactory, and an inexperienced employee performed the work.

OBJ. 2

✔ G. $350,500

PR 19-4A Analyzing manufacturing cost accounts

Long Board Company manufactures designer paddle boards in a wide variety of sizes and styles. The following incomplete ledger accounts refer to transactions that are summarized for May:

Materials

May	1	Balance	37,500	May 31	Requisitions	(A)
	31	Purchases	150,000			

Work in Process

May	1	Balance	(B)	May 31	Completed jobs	(F)
	31	Materials	(C)			
	31	Direct labor	(D)			
	31	Factory overhead applied	(E)			

Finished Goods

May	1	Balance	0	May 31	Cost of goods sold	(G)
	31	Completed jobs	(F)			

Wages Payable

				May 31	Wages incurred	150,000

Factory Overhead

May	1	Balance	15,000	May 31	Factory overhead applied	(E)
	31	Indirect labor	(H)			
	31	Indirect materials	20,000			
	31	Other overhead	120,000			

In addition, the following information is available:

a. Materials and direct labor were applied to six jobs in May:

Job No.	Style	Quantity	Direct Materials	Direct Labor
15	A-100	250	$ 25,000	$ 18,750
16	A-200	500	42,500	32,500
17	A-500	250	17,500	10,000
18	X-2	300	37,500	31,500
19	A-400	220	27,500	22,000
20	X-1	175	10,000	5,620
	Total	1,695	$160,000	$120,370

b. Factory overhead is applied to each job at a rate of 150% of direct labor cost.

c. The May 1 Work in Process balance consisted of two jobs, as follows:

Job No.	Style	Work in Process, May 1
Job 15	A-100	$ 7,500
Job 16	A-200	20,000
Total		$27,500

d. Customer jobs completed and units sold in May were as follows:

Job No.	Style	Completed in May	Units Sold in May
15	A-100	X	200
16	A-200	X	400
17	A-500		0
18	X-2	X	260
19	A-400	X	190
20	X-1		0

Instructions

1. Determine the missing amounts associated with each letter. Provide supporting calculations by completing a table with the following headings:

Job No.	Quantity	May 1 Work in Process	Direct Materials	Direct Labor	Factory Overhead	Total Cost	Unit Cost	Units Sold	Cost of Goods Sold

2. Determine the May 31 balances for each of the inventory accounts and factory overhead.

OBJ. 2

✔ 1. Income from operations, $2,030,000

PR 19-5A Flow of costs and income statement

Kid Stuff Inc. is in the business of developing, promoting, and selling children's videos. The company developed a new DVD video, called *Jake the Sleepy Old Dog*, on January 1, 2012. For the first six months of 2012, the company spent $1,500,000 on a media campaign for *Jake the Sleepy Old Dog* and $650,000 in legal costs. The video production began on February 1, 2012.

Kid Stuff uses a job order cost system to accumulate costs associated with a DVD video title. The unit direct materials cost for the video is:

DVD video	$1.00
Case	1.50
Story booklet and stuffed animal	3.50

The production process is straightforward. First, the blank DVDs are brought to a production area where the video is copied onto a DVD. The copying machine requires one hour per 2,000 DVDs.

After the DVDs are copied, they are brought to an assembly area where an employee packs the DVD in a case along with the story booklet and stuffed animal. The direct labor cost is $0.20 per unit.

The DVDs are sold to stores. Each store is given promotional materials, such as posters and aisle displays. Promotional materials cost $30 per store. In addition, shipping costs average $0.30 per DVD.

Total completed production was 800,000 units during the year. Other information is as follows:

Number of customers (stores)	50,000
Number of DVDs sold	710,000
Wholesale price (to store) per DVD	$15

Factory overhead cost is applied to jobs at the rate of $1,000 per copy machine hour after the vidoes are copied to the DVDs. There were an additional 15,000 copied DVDs, cases, story booklets, and stuffed animals waiting to be assembled on December 31, 2012.

Instructions

1. Prepare an annual income statement for the *Jake the Sleepy Old Dog* video, including supporting calculations, from the information above.
2. Determine the balances in the work in process and finished goods inventory for the *Jake the Sleepy Old Dog* video on December 31, 2012.

Problems Series B

OBJ. 2

PR 19-1B Entries for costs in a job order cost system

Jester Company uses a job order cost system. The following data summarize the operations related to production for September:

a. Materials purchased on account, $550,000.

b. Materials requisitioned, $485,000, of which $54,200 was for general factory use.

c. Factory labor used, $540,000, of which $130,000 was indirect.

d. Other costs incurred on account were for factory overhead, $175,000; selling expenses, $122,500; and administrative expenses, $79,000.

e. Prepaid expenses expired for factory overhead were $17,500; for selling expenses, $20,300; and for administrative expenses, $11,900.

f. Depreciation of factory equipment was $35,400; of office equipment, $44,200; and of store equipment, $10,650.

g. Factory overhead costs applied to jobs, $385,000.

h. Jobs completed, $1,350,000.

i. Cost of goods sold, $1,325,000.

Instruction

Journalize the entries to record the summarized operations.

OBJ. 2

✔ 3. Work in Process balance, $90,722

PR 19-2B Entries and schedules for unfinished jobs and completed jobs

Krall Company uses a job order cost system. The following data summarize the operations related to production for June 2012, the first month of operations:

a. Materials purchased on account, $105,000.

b. Materials requisitioned and factory labor used:

Job No.	Materials	Factory Labor
101	$13,800	$13,875
102	16,500	20,100
103	9,600	10,000
104	27,300	26,100
105	12,900	11,100
106	12,800	13,350
For general factory use	6,150	14,400

c. Factory overhead costs incurred on account, $4,125.

d. Depreciation of machinery and equipment, $2,800.

e. The factory overhead rate is $38 per machine hour. Machine hours used:

Job	Machine Hours
101	110
102	114
103	90
104	170
105	114
106	124
Total	722

f. Jobs completed: 101, 102, 103, and 105.

g. Jobs were shipped and customers were billed as follows: Job 101, $39,200; Job 102, $50,400; Job 105, $35,400.

Instructions

1. Journalize the entries to record the summarized operations.
2. Post the appropriate entries to T accounts for Work in Process and Finished Goods, using the identifying letters as dates. Insert memo account balances as of the end of the month.
3. Prepare a schedule of unfinished jobs to support the balance in the work in process account.
4. Prepare a schedule of completed jobs on hand to support the balance in the finished goods account.

OBJ. 2, 3

PR 19-3B Job order cost sheet

If the working papers correlating with the textbook are not used, omit Problem 19-3B.

Tylee Furniture Company refinishes and reupholsters furniture. Tylee uses a job order cost system. When a prospective customer asks for a price quote on a job, the estimated cost data are inserted on an unnumbered job cost sheet. If the offer is accepted, a number is assigned to the job, and the costs incurred are recorded in the usual manner on the job cost sheet. After the job is completed, reasons for the variances between the estimated and actual costs are noted on the sheet. The data are then available to management in evaluating the efficiency of operations and in preparing quotes on future jobs. On April 15, 2012, an estimate of $684.00 for reupholstering a sofa and a loveseat was given to Jeff Tomcszak. The estimate was based on the following data:

Estimated direct materials:	
18 meters at $18 per meter	$ 324.00
Estimated direct labor:	
12 hours at $20 per hour	240.00
Estimated factory overhead (50% of direct labor cost)	120.00
Total estimated costs	$ 684.00
Markup (50% of production costs)	342.00
Total estimate	$1,026.00

On April 19, the sofa and loveseat were picked up from the residence of Jeff Tomcszak, 202 Bimmer Road, Mooresville, NC, with a commitment to return them on May 22. The job was completed on May 20.

The related materials requisitions and time tickets are summarized as follows:

Materials Requisition No.	Description	Amount
602	9 meters at $18	$162
606	11 meters at $18	198

Time Ticket No.	Description	Amount
H9	8 hours at $19	$152
H12	8 hours at $19	152

Instructions

1. Complete that portion of the job order cost sheet that would be prepared when the estimate is given to the customer.
2. Assign number 12-305 to the job, record the costs incurred, and complete the job order cost sheet. Comment on the reasons for the variances between actual costs and estimated costs. For this purpose, assume that two meters of materials were spoiled, the factory overhead rate has been proved to be satisfactory, and an inexperienced employee performed the work.

OBJ. 2

✔ G. $329,400

PR 19-4B Analyzing manufacturing cost accounts

Jagger and Richards Company manufactures custom guitars in a wide variety of styles. The following incomplete ledger accounts refer to transactions that are summarized for October:

Materials

Oct.	1	Balance	48,000	Oct. 31	Requisitions	(A)
	31	Purchases	225,000			

Work in Process

Oct.	1	Balance	(B)	Oct. 31	Completed jobs	(F)
	31	Materials	(C)			
	31	Direct labor	(D)			
	31	Factory overhead applied	(E)			

Finished Goods

Oct.	1	Balance	0	Oct. 31	Cost of goods sold	(G)
	31	Completed jobs	(F)			

Wages Payable

				Oct. 31	Wages incurred	180,000

Factory Overhead

Oct.	1	Balance	12,000	Oct. 31	Factory overhead applied	(E)
	31	Indirect labor	(H)			
	31	Indirect materials	7,000			
	31	Other overhead	77,500			

In addition, the following information is available:

a. Materials and direct labor were applied to six jobs in October:

Job No.	Style	Quantity	Direct Materials	Direct Labor
101	X-1	150	$ 37,500	$ 27,000
102	X-3	175	48,000	33,000
103	X-2	225	60,000	50,000
104	S-1	175	30,000	18,000
105	S-2	300	54,000	30,000
106	X-4	150	30,000	14,000
	Total	1,175	$259,500	$172,000

b. Factory overhead is applied to each job at a rate of 60% of direct labor cost.

c. The October Work in Process balance consisted of two jobs, as follows:

Job No.	Style	Work in Process, October 1
Job 101	X-1	$12,000
Job 102	X-3	21,000
Total		$33,000

d. Customer jobs completed and units sold in October were as follows:

Job No.	Style	Completed in October	Units Sold in October
101	X-1	X	120
102	X-3	X	165
103	X-2		0
104	S-1	X	175
105	S-2	X	240
106	X-4		0

Instructions

1. Determine the missing amounts associated with each letter. Provide supporting calculations by completing a table with the following headings:

Job No.	Quantity	Oct. 1 Work in Process	Direct Materials	Direct Labor	Factory Overhead	Total Cost	Unit Cost	Units Sold	Cost of Goods Sold

2. Determine the October 31 balances for each of the inventory accounts and factory overhead.

OBJ. 2

✔ 1. Income from operations, $3,590,000

PR 19-5B Flow of costs and income statement

Designer Software Inc. is a designer, manufacturer, and distributor of software for microcomputers. A new product, *Design 2012*, was released for production and distribution in early 2012. In January, $1,250,000 was spent on developing marketing and advertising materials. For the first six months of 2012, the company spent $1,200,000 promoting *Design 2012* in trade magazines. The product was ready for manufacture on January 21, 2012.

Designer Software uses a job order cost system to accumulate costs associated with each software title. Direct materials unit costs are as follows:

Blank CD	$0.60
Packaging	1.00
Manual	6.40
Total	$8.00

The actual production process for the software product is fairly straightforward. First, blank CDs are brought to a CD copying machine. The copying machine requires one hour per 2,500 CDs.

After the program is copied onto the CD, the CD is brought to assembly, where assembly personnel pack the CD and manual for shipping. The direct labor cost for this work is $0.60 per unit.

The completed packages are then sold to retail outlets through a sales force. The sales force is compensated by a 20% commission on the wholesale price for all sales.

Total completed production was 250,000 units during the year. Other information is as follows:

Number of software units sold in 2012	200,000
Wholesale price per unit	$50

Factory overhead cost is applied to jobs at the rate of $3,000 per copy machine hour after the program is copied to the CDs. There were an additional 10,000 copied CDs, packaging, and manuals waiting to be assembled on December 31, 2012.

Instructions

1. Prepare an annual income statement for the *Design 2012* product, including supporting calculations, from the information above.
2. Determine the balances in the finished goods and work in process inventory for the *Design 2012* product on December 31, 2012.

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA 19-1 Calculation of predetermined overhead application rate

California Custom Design, LLC, is a business that customizes motorcycles and automobiles according to the customers' specifications. The company uses a job-order cost accounting system. Factory overhead is applied to production on the basis of direct labor hours. Estimated overhead costs for the coming year amount to $860,000. The company expects to operate at 80% of capacity, utilizing 16,000 direct labor hours.

a. Open the Excel file *SA19-1_2e.*

b. Calculate the predetermined overhead application rate.

c. When you have completed determining the overhead application rate, perform a "save as," replacing the entire file name with the following:
SA19-1_2e[your first name initial]_[your last name]

SA 19-2 Calculation of predetermined overhead application rate

Mendoza Home Builders, Inc., specializes in the construction of large family homes. The company applies overhead to each home it builds on the basis of the direct labor cost incurred on the job site. The budgeted total direct labor costs for the coming year amount to $5,000,000. A list of the budgeted overhead costs is presented below.

Budgeted Overhead Costs	
Indirect labor—hourly workers	$1,000,000
Indirect labor—supervisor salaries	400,000
Equipment repairs and maintenance	350,000
Indirect materials	250,000
Licenses, permits, and taxes	100,000
Waste disposal	75,000
Equipment depreciation	50,000
Materials and equipment storage	20,000
Small tools lost or broken	12,000
Other miscellaneous overhead	43,000

a. Open the Excel file *SA19-2_2e.*

b. Calculate the predetermined overhead application rate for the coming year.

c. When you have completed determining the overhead application rate, perform a "save as," replacing the entire file name with the following:
SA19-2_2e[your first name initial]_[your last name]

SA 19-3 Calculation of predetermined overhead application rate

Sandstone Manufacturing Company operates three production facilities in the state of New Mexico. Because manufacturing operations are heavily automated, the company uses machine hours as the factory overhead allocation base. The estimated annual overhead costs and the budgeted number of machine hours for each of these facilities are as follows:

	Manufacturing Facility		
	Santa Fe	Clovis	Roswell
Estimated annual factory overhead cost	$1,670,000	$1,394,000	$1,200,000
Estimated total machine hours	1,000,000	820,000	750,000

Calculate the predetermined factory overhead application rates that would be used in each of these manufacturing plants during the coming year.

a. Open the Excel file *SA19-3_2e.*

b. Calculate the predetermined overhead rate for the coming year for each manufacturing plant.

c. When you have completed determining the overhead application rate, perform a "save as," replacing the entire file name with the following:
SA19-3_2e[your first name initial]_[your last name]

l Strauch@streetcarmike.com

CHAPTER

20

Process Cost Systems

Dreyer's Grand Ice Cream, Inc.

In making ice cream, an electric ice cream maker is used to mix ingredients, which include milk, cream, sugar, and flavoring. After the ingredients are added, the mixer is packed with ice and salt to cool the ingredients, and it is then turned on.

After mixing for half of the required time, would you have ice cream? Of course not, because the ice cream needs to mix longer to freeze. Now, assume that you ask the question:

> What costs have I incurred so far in making ice cream?

The answer to this question requires knowing the cost of the ingredients and electricity. The ingredients are added at the beginning; thus, all the ingredient costs have been incurred. Since the mixing is only half complete, only 50% of the electricity costs has been incurred. Therefore, the answer to the preceding question is:

> All the materials costs and half the electricity costs have been incurred.

These same cost concepts apply to larger ice cream processes like those of **Dreyer's Grand Ice Cream, Inc.**, manufacturer of Häagen-Dazs®, Edys®, Dreyer's®, and Nestle® ice cream. Dreyer's mixes ingredients in 3,000-gallon vats in much the same way you would with an electric ice cream maker. Dreyer's also records the costs of the ingredients, labor, and factory overhead used in making ice cream. These costs are used by managers for decisions such as setting prices and improving operations.

This chapter describes and illustrates process cost systems that are used by manufacturers such as Dreyer's. In addition, the use of cost of production reports in decision making is described. Finally, just-in-time cost systems are discussed.

Learning Objectives

After studying this chapter, you should be able to:		Example Exercises		Page
OBJ. 1	Describe process cost systems.			
	Process Cost Systems			
	Comparing Job Order and Process Cost Systems	EE 20-1		917
	Cost Flows for a Process Manufacturer			
OBJ. 2	Prepare a cost of production report.			
	Cost of Production Report			
	Step 1: Determine the Units to Be Assigned Costs	EE 20-2		921
	Step 2: Compute Equivalent Units of Production	EE 20-3, 20-4	excel success	922, 925
	Step 3: Determine the Cost per Equivalent Unit	EE 20-5		926
	Step 4: Allocate Costs to Units Transferred Out and Partially Completed Units	EE 20-6	excel success	929
	Preparing the Cost of Production Report			
OBJ. 3	Journalize entries for transactions using a process cost system.			
	Journal Entries for a Process Cost System	EE 20-7		933
OBJ. 4	Describe and illustrate the use of cost of production reports for decision making.			
	Using the Cost of Production Report for Decision Making			
	Frozen Delight			
	Holland Beverage Company	EE 20-8		935
	Yield			
OBJ. 5	Compare just-in-time processing with traditional manufacturing processing.			
	Just-in-Time Processing			

At a Glance 20 Page 942

OBJ. 1 Describe process cost systems.

Process Cost Systems

A **process manufacturer** produces products that are indistinguishable from each other using a continuous production process. For example, an oil refinery processes crude oil through a series of steps to produce a barrel of gasoline. One barrel of gasoline, the product, cannot be distinguished from another barrel. Other examples of process manufacturers include paper producers, chemical processors, aluminum smelters, and food processors.

The cost accounting system used by process manufacturers is called the **process cost system.** A process cost system records product costs for each manufacturing department or process.

In contrast, a job order manufacturer produces custom products for customers or batches of similar products. For example, a custom printer produces wedding invitations, graduation announcements, or other special print items that are tailored to the specifications of each customer. Each item manufactured is unique to itself. Other examples of job order manufacturers include furniture manufacturers, shipbuilders, and home builders.

As described and illustrated in Chapter 19, the cost accounting system used by job order manufacturers is called the *job order cost system.* A job order cost system records product cost for each job using job cost sheets.

Some examples of process and job order manufacturers are shown on the next page.

Process Manufacturers		Job Order Manufacturers	
Company	**Product**	**Company**	**Product**
Pepsi	soft drinks	Walt Disney	movies
Alcoa	aluminum	Nike, Inc.	athletic shoes
Intel	computer chip	Nicklaus Design	golf courses
Apple	iPhone	Heritage Log Homes	log homes
Hershey Foods	chocolate bars	DDB Advertising Agency	advertising

Comparing Job Order and Process Cost Systems

Process and job order cost systems are similar in that each system:

1. Records and summarizes product costs.
2. Classifies product costs as direct materials, direct labor, and factory overhead.
3. Allocates factory overhead costs to products.
4. Uses perpetual inventory system for materials, work in process, and finished goods.
5. Provides useful product cost information for decision making.

Process and job costing systems are different in several ways. As a basis for illustrating these differences, the cost systems for Frozen Delight and Legend Guitars are used.

Integrity, Objectivity, and Ethics in Business

ON BEING GREEN

Building a world with environmentally sustainable resources is one of the largest challenges of today's corporate community. E.I. du Pont de Nemours and Company (DuPont) states: *As a science company, (we have) the experience and expertise to put our science to work in ways that can design in—at the early stages of product development—attributes that help protect or enhance human health, safety, and the environment.* As a result, DuPont has developed a set of product and manufacturing related goals for the year 2015.

- Double investment in R&D programs with direct and quantifiable environmental benefits.
- Grow annual revenues by $2 billion from products that reduce greenhouse emissions.
- Double revenues from nondepletable resources to at least $8 billion.
- Reduce greenhouse gas emissions from its processing facilities by 15%.
- Reduce air carcinogens from its processing facilities by 50%.

Source: DuPont Web site.

Exhibit 1 illustrates the process cost system for Frozen Delight, an ice cream manufacturer. As a basis for comparison, Exhibit 1 also illustrates the job order cost system for Legend Guitars, a custom guitar manufacturer. Legend Guitars was described and illustrated in Chapters 18 and 19.

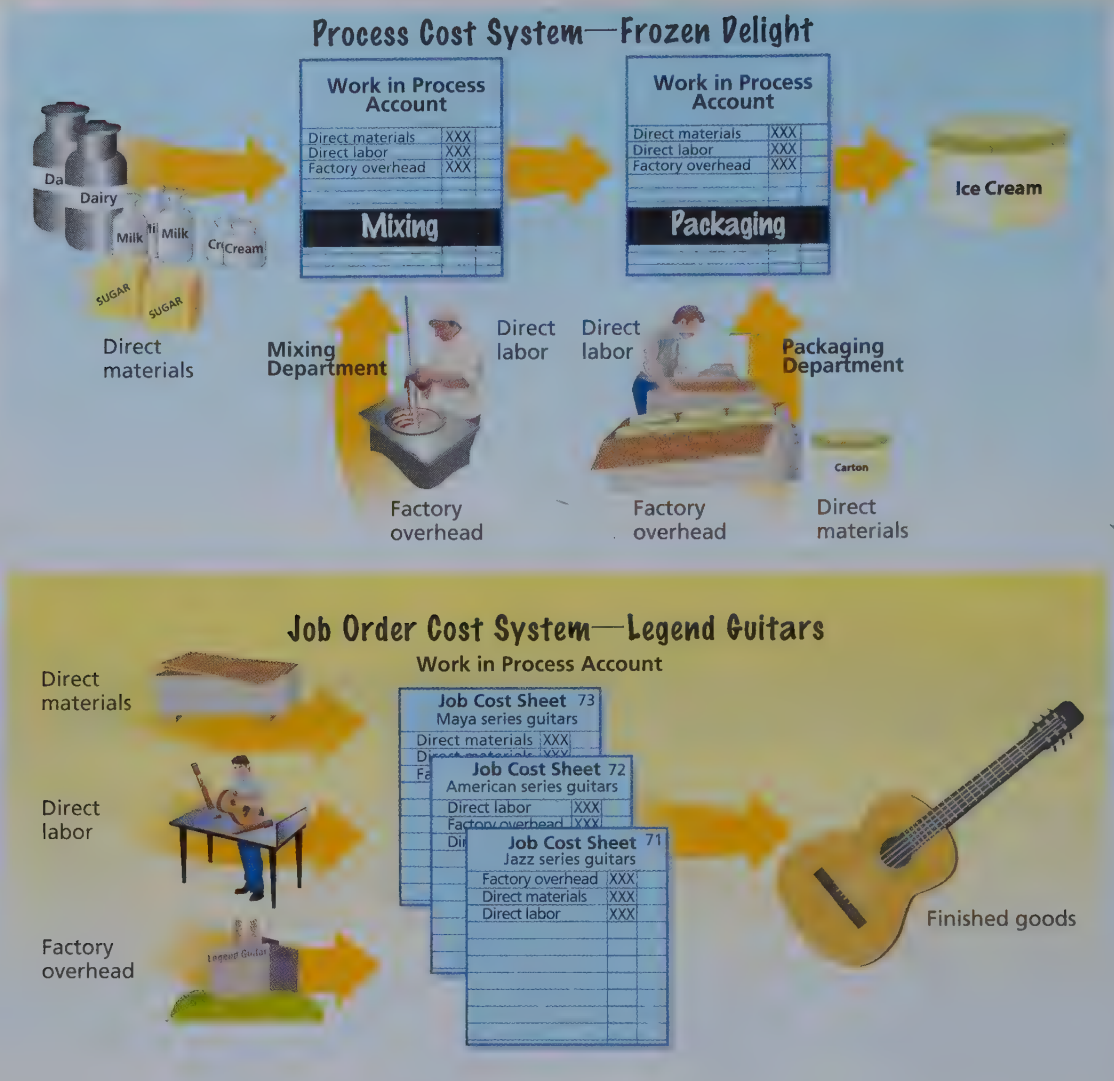
Exhibit 1 indicates that Frozen Delight manufactures ice cream using two departments:

1. Mixing Department mixes the ingredients using large vats.
2. Packaging Department puts the ice cream into cartons for shipping to customers.

Since each gallon of ice cream is similar, product costs are recorded in each department's work in process account. As shown in Exhibit 1, Frozen Delight accumulates (records) the cost of making ice cream in *work in process accounts* for the Mixing and Packaging departments. The product costs of making a gallon of ice cream include:

1. *Direct materials cost,* which include milk, cream, sugar, and packing cartons. All materials costs are added at the beginning of the process for both the Mixing Department and the Packaging Department.

EXHIBIT 1 Process Cost and Job Order Cost Systems



2. *Direct labor cost*, which is incurred by employees in each department who run the equipment and load and unload product.
3. *Factory overhead costs*, which include the utility costs (power) and depreciation on the equipment.

When the Mixing Department completes the mixing process, its product costs are transferred to the Packaging Department. When the Packaging Department completes its process, the product costs are transferred to Finished Goods. In this way, the cost of the product (a gallon of ice cream) accumulates across the entire production process.

In contrast, Exhibit 1 shows that Legend Guitars accumulates (records) product costs by jobs using a job cost sheet for each type of guitar. Thus, Legend Guitars uses just one work in process account. As each job is completed, its product costs are transferred to Finished Goods.

In a job order cost system, the work in process at the end of the period is the sum of the job cost sheets for partially completed jobs. In a process cost system, the work in process at the end of the period is the sum of the costs remaining in each department account at the end of the period.

Example Exercise 20-1 Job Order vs. Process Costing

OBJ. 1

Which of the following industries would normally use job order costing systems, and which would normally use process costing systems?

Home construction
Beverages
Military aircraft
Computer chips
Cookies
Video game design and production

Follow My Example 20-1

Home construction	Job order
Beverages	Process
Military aircraft	Job order
Computer chips	Process
Cookies	Process
Video game design and production	Job order

Practice Exercises: **PE 20-1A, PE 20-1B**

Cost Flows for a Process Manufacturer

Materials costs can be as high as 70% of the total product costs for many process manufacturers.

Exhibit 2 illustrates the *physical flow* of materials for Frozen Delight. Ice cream is made in a manufacturing plant in much the same way you would make it at home, except on a larger scale.

In the Mixing Department, direct materials in the form of milk, cream, and sugar are placed into a vat. An employee (direct labor) fills each vat, sets the cooling temperature, and sets the mix speed. The vat is cooled (refrigerated) as the direct materials are being mixed by agitators (paddles). Factory overhead is incurred in the form of power (electricity) to run the vat and vat (equipment) depreciation.

In the Packaging Department, the ice cream is received from the Mixing Department in a form ready for packaging. The Packaging Department uses direct labor and factory overhead (conversion costs) to package the ice cream into one-gallon containers (direct materials). The ice cream is then transferred to finished goods where it is frozen and stored in refrigerators prior to shipment to customers (stores).

EXHIBIT 2 **Physical Flows for a Process Manufacturer**

The *cost flows* in a process cost accounting system are similar to the *physical flow* of materials described above. The cost flows for Frozen Delight are illustrated in Exhibit 3 (on page 919) as follows:

a. The cost of materials purchased is recorded in the materials account.

b. The cost of direct materials used by the Mixing and Packaging departments is recorded in the work in process accounts for each department.

c. The cost of direct labor used by the Mixing and Packaging departments is recorded in work in process accounts for each department.
d. The cost of factory overhead incurred for indirect materials and other factory overhead such as depreciation is recorded in the factory overhead accounts for each department.
e. The factory overhead incurred in the Mixing and Packaging departments is applied to the work in process accounts for each department.
f. The cost of units completed in the Mixing Department is transferred to the Packaging Department.
g. The cost of units completed in the Packaging Department is transferred to Finished Goods.
h. The cost of units sold is transferred to Cost of Goods Sold.

As shown in Exhibit 3, the Mixing and Packaging departments have separate factory overhead accounts. The factory overhead costs incurred for indirect materials, depreciation, and other overhead are debited to each department's factory overhead account. The overhead is applied to work in process by debiting each department's work in process account and crediting the department's factory overhead account.

Exhibit 3 illustrates how the Mixing and Packaging departments have separate work in process accounts. Each work in process account is debited for the direct materials, direct labor, and applied factory overhead. In addition, the work in process account for the Packaging Department is debited for the cost of the units transferred in from the Mixing Department. Each work in process account is credited for the cost of the units transferred to the next department.

Lastly, Exhibit 3 shows that the finished goods account is debited for the cost of the units transferred from the Packaging Department. The finished goods account is credited for the cost of the units sold, which is debited to the cost of goods sold account.

BusinessConnection

FRIDGE PACK

Go to any food store and you will see beverage cans sold in popular 12-can fridge packs. The fridge pack was introduced to the soft drink industry in 1998 by Alcoa Inc.

The fridge pack story began when Alcoa was looking for ways to sell more aluminum can sheet, one of its major products. After extensive market research, Alcoa thought of a fiberboard package design that would make it easier for consumers to store canned beverages in a refrigerator by taking up the "dead space." Alcoa believed if more cans could be stored in the refrigerator it would result in more cans being consumed, and hence more overall sales.

The fridge pack was first adopted by Coca-Cola Australia, where they saw an instant increase in sales as Alcoa predicted. As a result, the remaining soft beverage industry quickly adopted the package design. Miller Brewing introduced the fridge pack for beer in 2004. The fridge pack is an excellent example of a process manufacturer, like Alcoa, creating innovations to benefit their customers (and themselves).

Source: Alcoa Recycling Company, "Fridge Vendor: A Cool Idea that Is Paying Off," Web site, 2010.

OBJ. 2 Prepare a cost of production report.

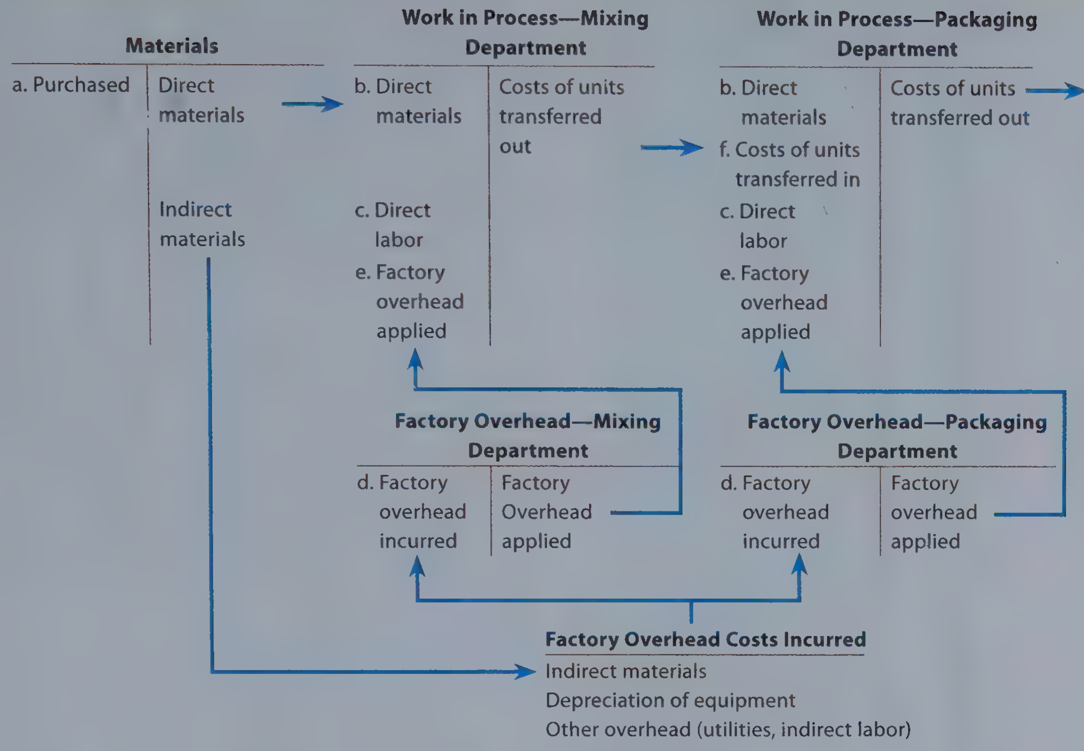
Cost of Production Report

In a process cost system, the cost of units transferred out of each processing department must be determined along with the cost of any partially completed units remaining in the department. The report that summarizes these costs is a cost of production report.

The **cost of production report** summarizes the production and cost data for a department as follows:

1. The units the department is accountable for and the disposition of those units.
2. The product costs incurred by the department and the allocation of those costs between completed (transferred out) and partially completed units.

EXHIBIT 3 Cost Flows for a Process Manufacturer—Frozen Delight



Cost Flows for Frozen Delight

a. The cost of materials purchased is recorded in the materials account.
b. The cost of direct materials used by the Mixing and Packaging departments is recorded in the work in process accounts for each department.
c. The cost of direct labor used by the Mixing and Packaging departments is recorded in work in process accounts for each department.
d. The cost of factory overhead incurred for indirect materials and other factory overhead such as depreciation is recorded in the factory overhead accounts for each department.
e. The factory overhead incurred in the Mixing and Packaging departments is applied to the work in process accounts for each department.
f. The cost of units completed in the Mixing Department is transferred to the Packaging Department.
g. The cost of units completed in the Packaging Department is transferred to Finished Goods.
h. The cost of units sold is transferred to Cost of Goods Sold.

A cost of production report is prepared using the following four steps:

Step 1. Determine the units to be assigned costs.
Step 2. Compute equivalent units of production.
Step 3. Determine the cost per equivalent unit.
Step 4. Allocate costs to units transferred out and partially completed units.

Preparing a cost of production report requires making a cost flow assumption. Like merchandise inventory, costs can be assumed to flow through the manufacturing process using the first-in, first-out (FIFO), last in, first-out (LIFO), or average cost methods. Because the **first-in, first-out (FIFO) method** is often the same as the physical flow of units, the FIFO method is used in this chapter.[1]

To illustrate, a cost of production report for the Mixing Department of Frozen Delight for July 2012 is prepared. The July data for the Mixing Department are as follows:

Inventory in process, July 1, 5,000 gallons:		
Direct materials cost, for 5,000 gallons	$5,000	
Conversion costs, for 5,000 gallons, 70% completed	1,225	
Total inventory in process, July 1		$ 6,225
Direct materials cost for July, 60,000 gallons		66,000
Direct labor cost for July		10,500
Factory overhead applied for July		7,275
Total production costs to account for		$90,000
Gallons transferred to Packaging in July (includes units in process on July 1), 62,000 gallons		?
Inventory in process, July 31, 3,000 gallons, 25% completed as to conversion costs		?

By preparing a cost of production report, the cost of the gallons transferred to the Packaging Department in July and the ending work in process inventory in the Mixing Department is determined. These amounts are indicated by question marks (?).

Step 1: Determine the Units to Be Assigned Costs

The first step is to determine the units to be assigned costs. A unit can be any measure of completed production, such as tons, gallons, pounds, barrels, or cases. For Frozen Delight, a unit is a gallon of ice cream.

The Mixing Department is accountable for 65,000 gallons of direct materials during July, as shown below.

Total units (gallons) charged to production:	
In process, July 1	5,000 gallons
Received from materials storage	60,000
Total units (gallons) accounted for	65,000 gallons

For July, the following three groups of units (gallons) are assigned costs:

Group 1. Units (gallons) in beginning work in process inventory on July 1.
Group 2. Units (gallons) started and completed during July.
Group 3. Units (gallons) in ending work in process inventory on July 31.

Exhibit 4 illustrates these groups of units (gallons) in the Mixing Department for July. The 5,000 gallons of beginning inventory were completed and transferred to the Packaging Department. During July, 60,000 gallons of material were started (entered into mixing). Of the 60,000 gallons started in July, 3,000 gallons were incomplete on July 31. Thus, 57,000 gallons (60,000 – 3,000) were started and completed in July.

The total units (gallons) to be assigned costs for July are summarized below.

Group 1	Inventory in process, July 1, completed in July	5,000 gallons
Group 2	Started and completed in July	57,000
	Transferred out to the Packaging Department in July	62,000 gallons
Group 3	Inventory in process, July 31	3,000
	Total units (gallons) to be assigned costs	65,000 gallons

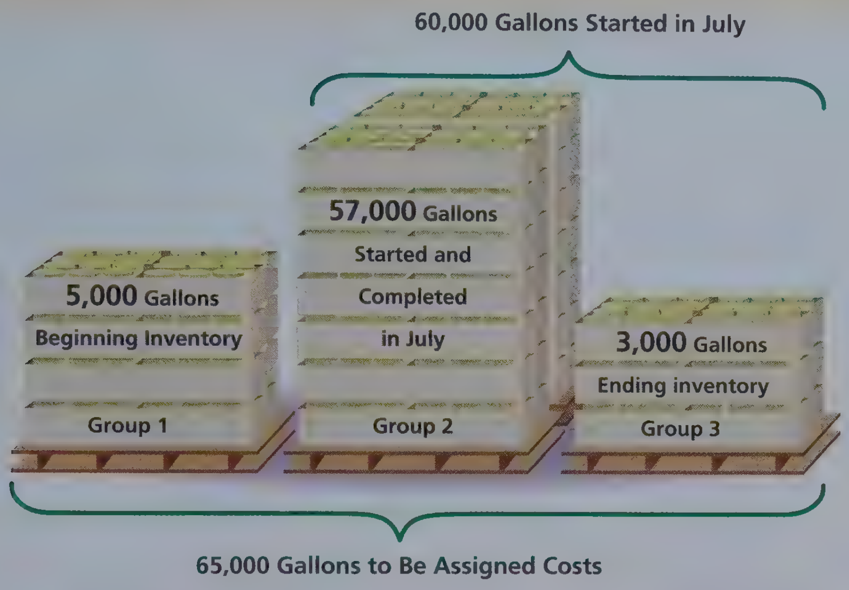
---

[1] The average cost method is illustrated in an appendix to this chapter.

The total gallons to be assigned costs (65,000) equal the total gallons accounted for (65,000) by the Mixing Department.

EXHIBIT 4

July Units to Be Costed—Mixing Department



Example Exercise 20-2 Units to Be Assigned Costs

Rocky Springs Beverage Company has two departments, Blending and Bottling. The Bottling Department received 57,000 liters from the Blending Department. During the period, the Bottling Department completed 58,000 liters, including 4,000 liters of work in process at the beginning of the period. The ending work in process was 3,000 liters. How many liters were started and completed during the period?

Follow My Example 20-2

54,000 liters started and completed (58,000 completed – 4,000 beginning WIP), or (57,000 started – 3,000 WIP)

Practice Exercises: **PE 20-2A, PE 20-2B**

Step 2: Compute Equivalent Units of Production

Whole units are the number of units in production during a period, whether completed or not. **Equivalent units of production** are the portion of whole units that are complete with respect to materials or conversion (direct labor and factory overhead) costs.

To illustrate, assume that a 1,000-gallon batch (vat) of ice cream is only 40% complete in the mixing process on May 31. Thus, the batch is only 40% complete as to conversion costs such as power. In this case, the whole units and equivalent units of production are as follows:

	Whole Units	Equivalent Units
Materials costs	1,000 gallons	1,000 gallons
Conversion costs	1,000 gallons	400 gallons (1,000 × 40%)

Since the materials costs are all added at the beginning of the process, the materials costs are 100% complete for the 1,000-gallon batch of ice cream. Thus, the whole

units and equivalent units for materials costs are 1,000 gallons. However, since the batch is only 40% complete as to conversion costs, the equivalent units for conversion costs are 400 gallons.

Equivalent units for materials and conversion costs are usually determined separately as shown earlier. This is because materials and conversion costs normally enter production at different times and rates. In contrast, direct labor and factory overhead normally enter production at the same time and rate. For this reason, direct labor and factory overhead are combined as conversion costs in computing equivalent units.

Materials Equivalent Units To compute equivalent units for materials, it is necessary to know how materials are added during the manufacturing process. In the case of Frozen Delight, all the materials are added at the beginning of the mixing process. Thus, the equivalent units for materials in July are computed as follows:

		Total Whole Units	Percent Materials Added in July	Equivalent Units for Direct Materials
Group 1	Inventory in process, July 1	5,000	0%	0
Group 2	Started and completed in July (62,000 − 5,000)	57,000	100%	57,000
	Transferred out to Packaging Department in July	62,000	—	57,000
Group 3	Inventory in process, July 31	3,000	100%	3,000
	Total gallons to be assigned cost	65,000		60,000

As shown above, the whole units for the three groups of units determined in Step 1 are listed in the first column. The percent of materials added in July is then listed. The equivalent units are determined by multiplying the whole units by the percent of materials added.

To illustrate, the July 1 inventory (Group 1) has 5,000 gallons of whole units, which are complete as to materials. That is, all the direct materials for the 5,000 gallons in process on July 1 were added in June. Thus, the percent of materials added in July is zero, and the equivalent units added in July are zero.

The 57,000 gallons started and completed in July (Group 2) are 100% complete as to materials. Thus, the equivalent units for the gallons started and completed in July are 57,000 (57,000 × 100%) gallons. Therefore, the equivalent units for the inventory in process on July 31 are 3,000 (3,000 × 100%) gallons. The 3,000 gallons in process on July 31 (Group 3) are also 100% complete as to materials since all materials are added at the beginning of the process.

Example Exercise 20-3 Equivalent Units of Materials Cost OBJ. 2

The Bottling Department of Rocky Springs Beverage Company had 4,000 liters in beginning work in process inventory (30% complete). During the period, 58,000 liters were completed. The ending work in process inventory was 3,000 liters (60% complete). What are the total equivalent units for direct materials if materials are added at the beginning of the process?

(continued)

Follow My Example 20-3

Total equivalent units for direct materials is 57,000, computed as follows:

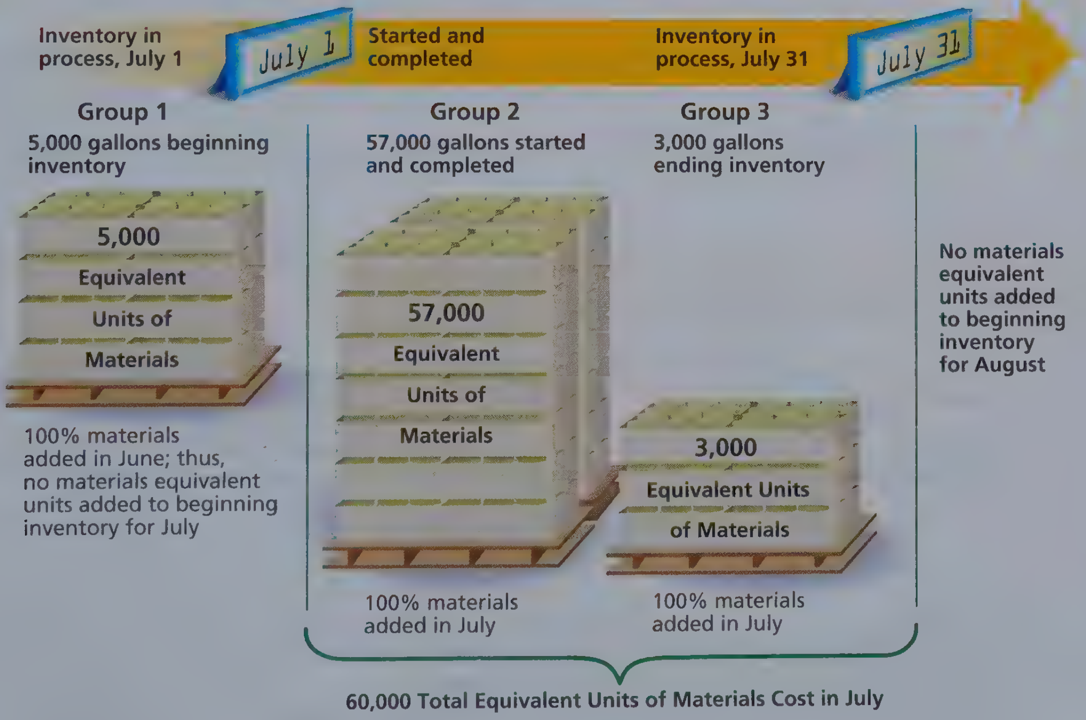
	Total Whole Units	Percent Materials Added in Period	Equivalent Units for Direct Materials
Inventory in process, beginning of period	4,000	0%	0
Started and completed during the period	54,000*	100%	54,000
Transferred out of Bottling (completed)	58,000	—	54,000
Inventory in process, end of period	3,000	100%	3,000
Total units to be assigned costs	61,000		57,000

*(58,000 – 4,000)

Practice Exercises: **PE 20-3A, PE 20-3B**

The equivalent units for direct materials are summarized in Exhibit 5.

EXHIBIT 5 **Direct Materials Equivalent Units**



Conversion Equivalent Units To compute equivalent units for conversion costs, it is necessary to know how direct labor and factory overhead enter the manufacturing process. Direct labor, utilities, and equipment depreciation are often incurred uniformly during processing. For this reason, it is assumed that Frozen Delight incurs conversion costs evenly throughout its manufacturing process. Thus, the equivalent units for conversion costs in July are computed as follows:

		Total Whole Units	Percent Conversion Completed in July	Equivalent Units for Conversion
Group 1	Inventory in process, July 1 (70% completed)	5,000	30%	1,500
Group 2	Started and completed in July (62,000 − 5,000)	57,000	100%	57,000
	Transferred out to Packaging Department in July	62,000	—	58,500
Group 3	Inventory in process, July 31 (25% completed)	3,000	25%	750
	Total gallons to be assigned cost	65,000		59,250

As shown above, the whole units for the three groups of units determined in Step 1 are listed in the first column. The percent of conversion costs added in July is then listed. The equivalent units are determined by multiplying the whole units by the percent of conversion costs added.

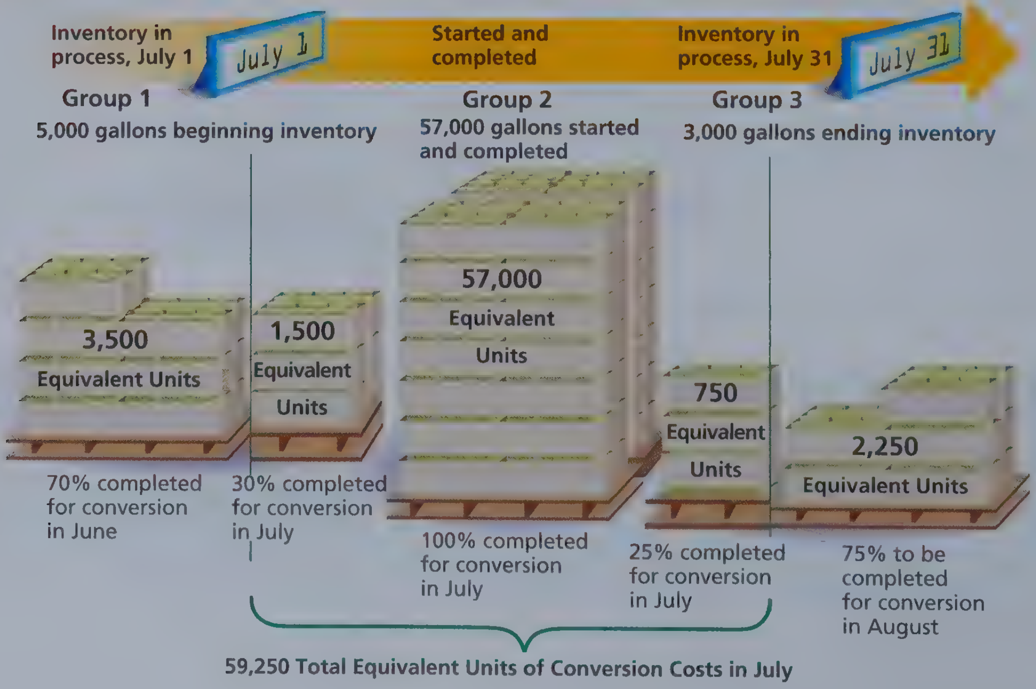
To illustrate, the July 1 inventory has 5,000 gallons of whole units (Group 1), which are 70% complete as to conversion costs. During July, the remaining 30% (100% − 70%) of conversion costs was added. Therefore, the equivalent units of conversion costs added in July are 1,500 (5,000 × 30%) gallons.

The 57,000 gallons started and completed in July (Group 2) are 100% complete as to conversion costs. Thus, the equivalent units of conversion costs for the gallons started and completed in July are 57,000 (57,000 × 100%) gallons.

The 3,000 gallons in process on July 31 (Group 3) are 25% complete as to conversion costs. Hence, the equivalent units for the inventory in process on July 31 are 750 (3,000 × 25%) gallons.

The equivalent units for conversion costs are summarized in Exhibit 6.

EXHIBIT 6 **Conversion Equivalent Units**



Example Exercise 20-4 Equivalent Units of Conversion Costs

OBJ. 2

The Bottling Department of Rocky Springs Beverage Company had 4,000 liters in beginning work in process inventory (30% complete). During the period, 58,000 liters were completed. The ending work in process inventory was 3,000 liters (60% complete). What are the total equivalent units for conversion costs?

Follow My Example 20-4

	Total Whole Units	Percent Conversion Completed in Period	Equivalent Units for Conversion
Inventory in process, beginning of period	4,000	70%	2,800
Started and completed during the period	54,000*	100%	54,000
Transferred out of Bottling (completed)	58,000	—	56,800
Inventory in process, end of period	3,000	60%	1,800
Total units to be assigned costs	61,000		58,600

*(58,000 – 4,000)

Practice Exercises: **PE 20-4A, PE 20-4B**

Step 3: Determine the Cost per Equivalent Unit

The next step in preparing the cost of production report is to compute the cost per equivalent unit for direct materials and conversion costs. The **cost per equivalent unit** for direct materials and conversion costs is computed as follows:

$$\text{Direct Materials Cost per Equivalent Unit} = \frac{\text{Total Direct Materials Cost for the Period}}{\text{Total Equivalent Units of Direct Materials}}$$

$$\text{Conversion Cost per Equivalent Unit} = \frac{\text{Total Conversion Costs for the Period}}{\text{Total Equivalent Units of Conversion Costs}}$$

The July direct materials and conversion cost equivalent units for Frozen Delight's Mixing Department from Step 2 are shown below.

		Equivalent Units	
		Direct Materials	Conversion
Group 1	Inventory in process, July 1	0	1,500
Group 2	Started and completed in July (62,000 – 5,000)	57,000	57,000
	Transferred out to Packaging Department in July	57,000	58,500
Group 3	Inventory in process, July 31	3,000	750
	Total gallons to be assigned cost	60,000	59,250

The direct materials and conversion costs incurred by Frozen Delight in July are as follows:

Direct materials		$66,000
Conversion costs:		
Direct labor	$10,500	
Factory overhead	7,275	17,775
Total product costs incurred in July		$83,775

The direct materials and conversion costs per equivalent unit are \$1.10 and \$0.30 per gallon, computed as follows:

$$\text{Direct Materials Cost per Equivalent Unit} = \frac{\text{Total Direct Materials Cost for the Period}}{\text{Total Equivalent Units of Direct Materials}}$$

$$\text{Direct Materials Cost per Equivalent Unit} = \frac{\$66{,}000}{60{,}000 \text{ gallons}} = \$1.10 \text{ per gallon}$$

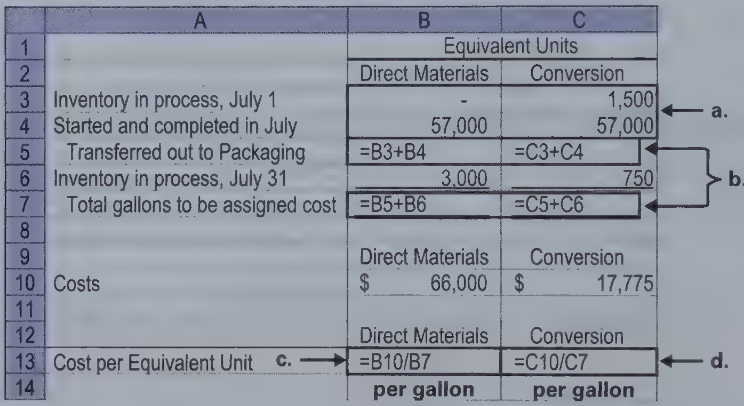
$$\text{Conversion Cost per Equivalent Unit} = \frac{\text{Total Conversion Costs for the Period}}{\text{Total Equivalent Units of Conversion Costs}}$$

$$\text{Conversion Cost per Equivalent Unit} = \frac{\$17{,}775}{59{,}250 \text{ gallons}} = \$0.30 \text{ per gallon}$$

The preceding costs per equivalent unit are used in Step 4 to allocate the direct materials and conversion costs to the completed and partially completed units.

excel success

The cost per equivalent unit can be determined using a spreadsheet as follows:



	A	B	C
1		Equivalent Units	
2		Direct Materials	Conversion
3	Inventory in process, July 1	-	1,500
4	Started and completed in July	57,000	57,000
5	Transferred out to Packaging	=B3+B4	=C3+C4
6	Inventory in process, July 31	3,000	750
7	Total gallons to be assigned cost	=B5+B6	=C5+C6
8			
9		Direct Materials	Conversion
10	Costs	$ 66,000	$ 17,775
11			
12		Direct Materials	Conversion
13	Cost per Equivalent Unit	=B10/B7	=C10/C7
14		per gallon	per gallon

a. Arrange the equivalent units and cost information in two columns, one for direct materials and one for conversion. Doing so will facilitate copying the cost per equivalent unit formula in step d.

b. Insert the appropriate sum formulas to compute the totals and subtotals of the equivalent units.

c. Insert in cell B13 a formula that divides the direct materials costs by the total gallons to be assigned.

d. Copy this formula to C13 to determine the cost per equivalent unit of conversion.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Example Exercise 20-5 Cost per Equivalent Unit

OBJ 2

The cost of direct materials transferred into the Bottling Department of Rocky Springs Beverage Company is \$22,800. The conversion cost for the period in the Bottling Department is \$8,790. The total equivalent units for direct materials and conversion are 57,000 liters and 58,600 liters, respectively. Determine the direct materials and conversion costs per equivalent unit.

Follow My Example 20-5

$$\text{Direct Materials Cost per Equivalent Unit} = \frac{\$22{,}800}{57{,}000 \text{ liters}} = \$0.40 \text{ per liter}$$

$$\text{Conversion Cost per Equivalent Unit} = \frac{\$8{,}790}{58{,}600 \text{ liters}} = \$0.15 \text{ per liter}$$

Practice Exercises: **PE 20-5A, PE 20-5B**

Step 4: Allocate Costs to Units Transferred Out and Partially Completed Units

Product costs must be allocated to the units transferred out and the partially completed units on hand at the end of the period. The product costs are allocated using the costs per equivalent unit for materials and conversion costs that were computed in Step 3.

The total production costs to be assigned for Frozen Delight in July are $90,000 as shown below and on page 920.

Inventory in process, July 1, 5,000 gallons:	
Direct materials cost, for 5,000 gallons	$ 5,000
Conversion costs, for 5,000 gallons, 70% completed	1,225
Total inventory in process, July 1	$ 6,225
Direct materials cost for July, 60,000 gallons	66,000
Direct labor cost for July	10,500
Factory overhead applied for July	7,275
Total production costs to account for	$90,000

The units to be assigned these costs are shown below. The costs to be assigned these units are indicated by question marks (?).

		Units	Total Cost
Group 1	Inventory in process, July 1, completed in July	5,000 gallons	?
Group 2	Started and completed in July	57,000	?
	Transferred out to the Packaging Department in July	62,000 gallons	?
Group 3	Inventory in process, July 31	3,000	?
	Total	65,000 gallons	$90,000

Group 1: Inventory in Process on July 1 The 5,000 gallons of inventory in process on July 1 (Group 1) were completed and transferred out to the Packaging Department in July. The cost of these units of $6,675 is determined as follows:

	Direct Materials Costs	Conversion Costs	Total Costs
Inventory in process, July 1 balance			$6,225
Equivalent units for completing the July 1 in-process inventory	0	1,500	
Cost per equivalent unit	× $1.10	× $0.30	
Cost of completed July 1 in-process inventory	0	$450	450
Cost of July 1 in-process inventory transferred to Packaging Department			$6,675

As shown above, $6,225 of the cost of the July 1 in-process inventory of 5,000 gallons was carried over from June. This cost plus the cost of completing the 5,000 gallons in July was transferred to the Packaging Department during July. The cost of completing the 5,000 gallons during July is $450. The $450 represents the conversion costs necessary to complete the remaining 30% of the processing. There were no direct materials costs added in July because all the materials costs had been added in June. Thus, the cost of the 5,000 gallons in process on July 1 (Group 1) transferred to the Packaging Department is $6,675.

Group 2: Started and Completed The 57,000 units started and completed in July (Group 2) incurred all (100%) of their direct materials and conversion costs in July. Thus, the cost of the 57,000 gallons started and completed is $79,800 computed by multiplying 57,000 gallons by the costs per equivalent unit for materials and conversion costs as shown below.

	Direct Materials Costs	Conversion Costs	Total Costs
Units started and completed in July	57,000 gallons	57,000 gallons	
Cost per equivalent unit	× $1.10	× $0.30	
Cost of the units started and completed in July	$62,700	$17,100	$79,800

The total cost transferred to the Packaging Department in July of $86,475 is the sum of the beginning inventory cost and the costs of the units started and completed in July as shown below.

Group 1	Cost of July 1 in-process inventory	$ 6,675
Group 2	Cost of the units started and completed in July	79,800
	Total costs transferred to Packaging Department in July	$86,475

Group 3: Inventory in Process on July 31 The 3,000 gallons in process on July 31 (Group 3) incurred all their direct materials costs and 25% of their conversion costs in July. The cost of these partially completed units of $3,525 is computed below.

	Direct Materials Costs	Conversion Costs	Total Costs
Equivalent units in ending inventory	3,000 gallons	750 gallons	
Cost per equivalent unit	× $1.10	× $0.30	
Cost of July 31 in-process inventory	$3,300	$225	$3,525

The 3,000 gallons in process on July 31 received all (100%) of their materials in July. Therefore, the direct materials cost incurred in July is $3,300 (3,000 × $1.10). The conversion costs of $225 represent the cost of the 750 (3,000 × 25%) equivalent gallons times the cost per equivalent unit for conversion costs of $0.30. The sum of the direct materials cost ($3,300) and the conversion costs ($225) equals the total cost of the July 31 work in process inventory of $3,525 ($3,300 + $225).

To summarize, the total manufacturing costs for Frozen Delight in July were assigned as shown below. In doing so, the question marks(?) on page 927 have been answered.

		Units	Total Cost
Group 1	Inventory in process, July 1, completed in July	5,000 gallons	$ 6,675
Group 2	Started and completed in July	57,000	79,800
	Transferred out to the Packaging Department in July	62,000 gallons	$86,475
Group 3	Inventory in process, July 31	3,000	3,525
	Total	65,000 gallons	$90,000

Example Exercise 20-6 Cost of Units Transferred Out and Ending Work in Process

OBJ. 2

The costs per equivalent unit of direct materials and conversion in the Bottling Department of Rocky Springs Beverage Company are $0.40 and $0.15, respectively. The equivalent units to be assigned costs are as follows:

	Equivalent Units	
	Direct Materials	**Conversion**
Inventory in process, beginning of period	0	2,800
Started and completed during the period	54,000	54,000
Transferred out of Bottling (completed)	54,000	56,800
Inventory in process, end of period	3,000	1,800
Total units to be assigned costs	57,000	58,600

The beginning work in process inventory had a cost of $1,860. Determine the cost of units transferred out and the ending work in process inventory.

Follow My Example 20-6

	Direct Materials Costs		Conversion Costs	Total Costs
Inventory in process, beginning of period				$ 1,860
Inventory in process, beginning of period	0	+	2,800 × $0.15	420
Started and completed during the period	54,000 × $0.40	+	54,000 × $0.15	29,700
Transferred out of Bottling (completed).............				$31,980
Inventory in process, end of period..................	3,000 × $0.40	+	1,800 × $0.15	1,470
Total costs assigned by the Bottling Department ...				$33,450
Completed and transferred out of production	$31,980			
Inventory in process, ending........................	$ 1,470			

Practice Exercises: **PE 20-6A, PE 20-6B**

Preparing the Cost of Production Report

A cost of production report is prepared for each processing department at periodic intervals. The report summarizes the following production quantity and cost data:

1. The units for which the department is accountable and the disposition of those units.
2. The production costs incurred by the department and the allocation of those costs between completed (transferred out) and partially completed units.

Using Steps 1–4, the July cost of production report for Frozen Delight's Mixing Department is shown in Exhibit 7.

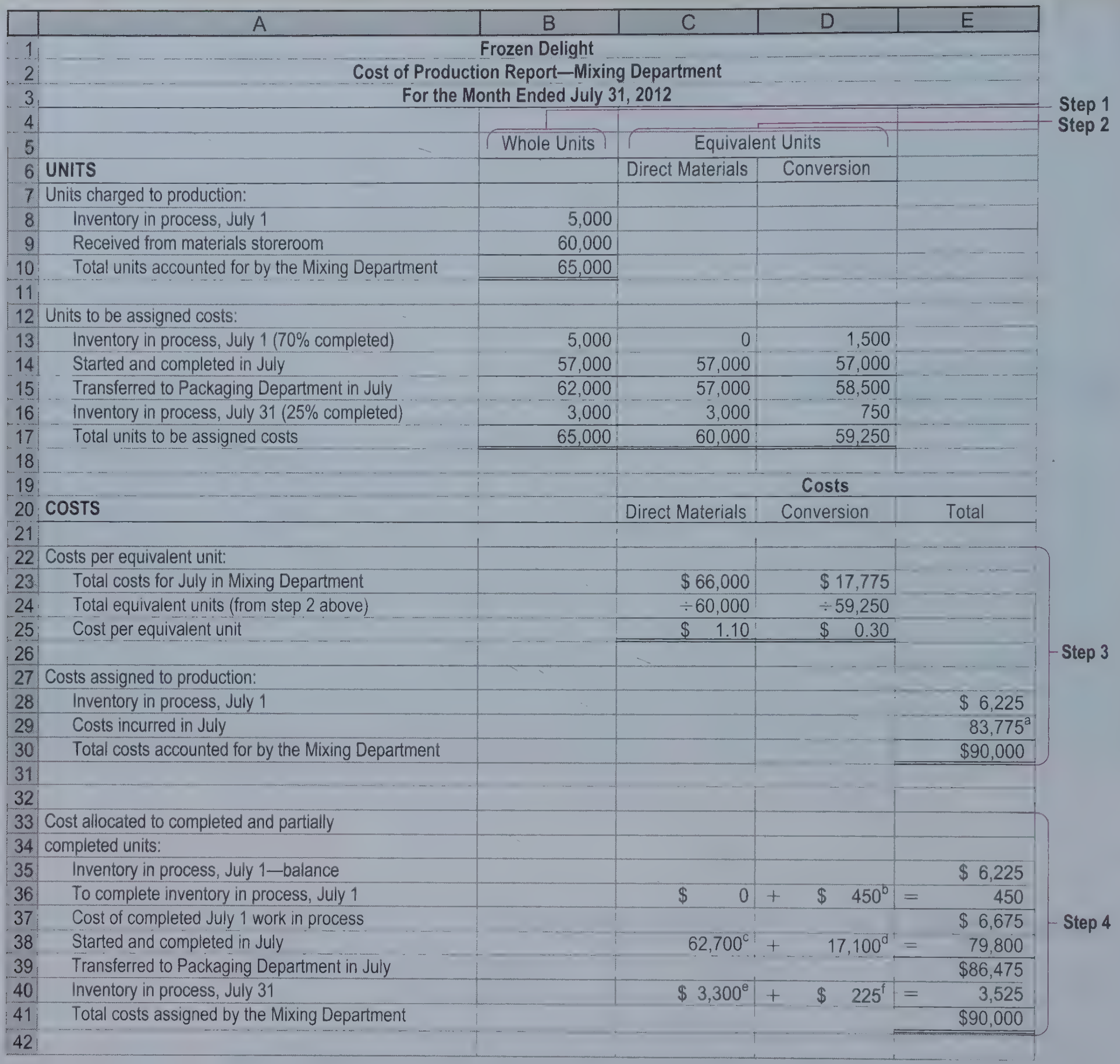
As shown in Exhibit 7, the Mixing Department was accountable for 65,000 units (gallons). Of these units, 62,000 units were completed and transferred to the Packaging Department. The remaining 3,000 units are partially completed and are part of in-process inventory as of July 31.

The Mixing Department was responsible for $90,000 of production costs during July. The cost of goods transferred to the Packaging Department in July was $86,475. The remaining cost of $3,525 is part of in-process inventory as of July 31.

excel success

The cost of production report on a spreadsheet is illustrated at the end of the chapter in a comprehensive spreadsheet illustration.

EXHIBIT 7 **Cost of Production Report for Frozen Delight's Mixing Department—FIFO**



	A	B	C	D	E
1		**Frozen Delight**			
2		**Cost of Production Report—Mixing Department**			
3		**For the Month Ended July 31, 2012**			
4					
5		Whole Units	Equivalent Units		
6	**UNITS**		Direct Materials	Conversion	
7	Units charged to production:				
8	Inventory in process, July 1	5,000			
9	Received from materials storeroom	60,000			
10	Total units accounted for by the Mixing Department	65,000			
11					
12	Units to be assigned costs:				
13	Inventory in process, July 1 (70% completed)	5,000	0	1,500	
14	Started and completed in July	57,000	57,000	57,000	
15	Transferred to Packaging Department in July	62,000	57,000	58,500	
16	Inventory in process, July 31 (25% completed)	3,000	3,000	750	
17	Total units to be assigned costs	65,000	60,000	59,250	
18					
19			Costs		
20	**COSTS**		Direct Materials	Conversion	Total
21					
22	Costs per equivalent unit:				
23	Total costs for July in Mixing Department		$ 66,000	$ 17,775	
24	Total equivalent units (from step 2 above)		÷60,000	÷59,250	
25	Cost per equivalent unit		$ 1.10	$ 0.30	
26					
27	Costs assigned to production:				
28	Inventory in process, July 1				$ 6,225
29	Costs incurred in July				83,775[a]
30	Total costs accounted for by the Mixing Department				$90,000
31					
32					
33	Cost allocated to completed and partially				
34	completed units:				
35	Inventory in process, July 1—balance				$ 6,225
36	To complete inventory in process, July 1		$ 0 +	$ 450[b] =	450
37	Cost of completed July 1 work in process				$ 6,675
38	Started and completed in July		62,700[c] +	17,100[d] =	79,800
39	Transferred to Packaging Department in July				$86,475
40	Inventory in process, July 31		$ 3,300[e] +	$ 225[f] =	3,525
41	Total costs assigned by the Mixing Department				$90,000
42					

[a] $66,000 + $10,500 + $7,275 = $83,775 [b] 1,500 units × $0.30 = $450 [c] 57,000 units × $1.10 = $62,700 [d] 57,000 units × $0.30 = $17,100
[e] 3,000 units × $1.10 = $3,300 [f] 750 units × $0.30 = $225

OBJ. 3 Journalize entries for transactions using a process cost system.

Journal Entries for a Process Cost System

The journal entries to record the cost flows and transactions for a process cost system are illustrated in this section. As a basis for illustration, the July transactions for Frozen Delight are used. To simplify, the entries are shown in summary form, even though many of the transactions would be recorded daily.

a. Purchased materials, including milk, cream, sugar, packaging, and indirect materials on account, $88,000.

		Materials		88,000	
		Accounts Payable			88,000

b. The Mixing Department requisitioned milk, cream, and sugar, $66,000. This is the amount indicated on page 920. Packaging materials of $8,000 were requisitioned by the Packaging Department. Indirect materials for the Mixing and Packaging departments were $4,125 and $3,000, respectively.

		Work in Process—Mixing		66,000	
		Work in Process—Packaging		8,000	
		Factory Overhead—Mixing		4,125	
		Factory Overhead—Packaging		3,000	
		Materials			81,125

c. Incurred direct labor in the Mixing and Packaging departments of $10,500 and $12,000, respectively.

		Work in Process—Mixing		10,500	
		Work in Process—Packaging		12,000	
		Wages Payable			22,500

d. Recognized equipment depreciation for the Mixing and Packaging departments of $3,350 and $1,000, respectively.

		Factory Overhead—Mixing		3,350	
		Factory Overhead—Packaging		1,000	
		Accumulated Depreciation—Equipment			4,350

e. Applied factory overhead to Mixing and Packaging departments of $7,275 and $3,500, respectively.

		Work in Process—Mixing		7,275	
		Work in Process—Packaging		3,500	
		Factory Overhead—Mixing			7,275
		Factory Overhead—Packaging			3,500

f. Transferred costs of $86,475 from the Mixing Department to the Packaging Department per the cost of production report in Exhibit 7.

		Work in Process—Packaging		86,475	
		Work in Process—Mixing			86,475

g. Transferred goods of $106,000 out of the Packaging Department to Finished Goods according to the Packaging Department cost of production report (not illustrated).

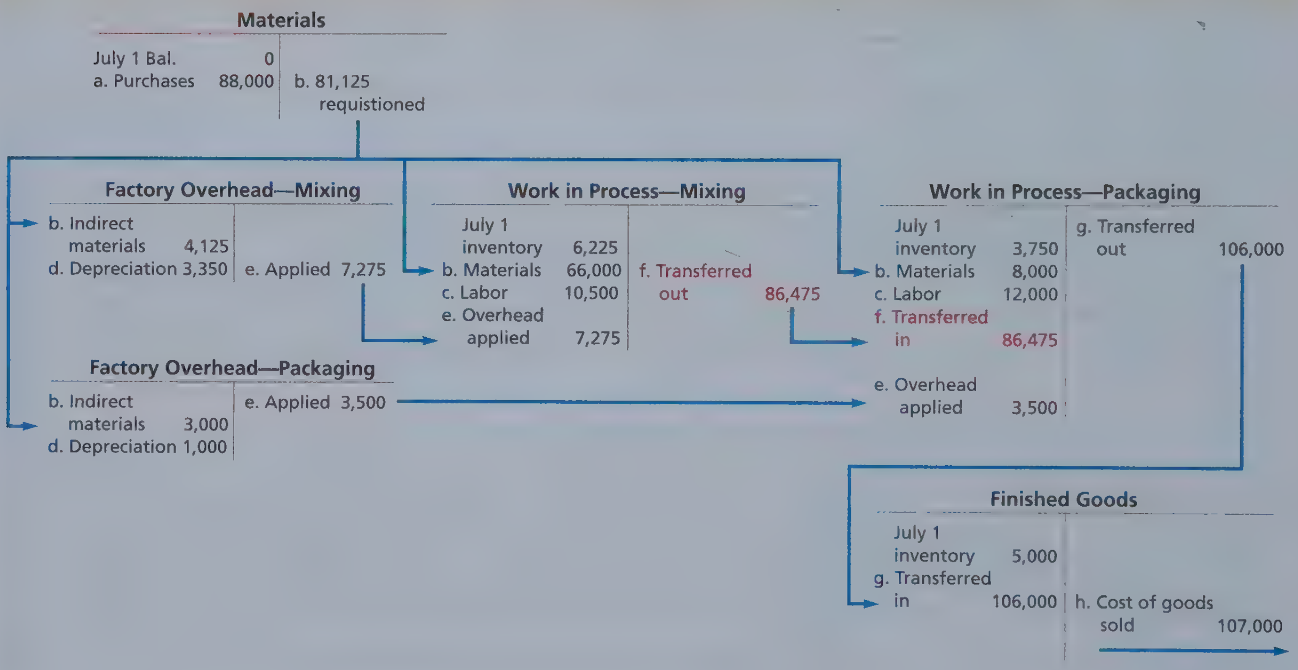
		Finished Goods—Ice Cream		106,000	
		Work in Process—Packaging			106,000

h. Recorded cost of goods sold out of the finished goods inventory of $107,000.

		Cost of Goods Sold		107,000	
		Finished Goods—Ice Cream			107,000

Exhibit 8 shows the flow of costs for each transaction. The highlighted amounts in Exhibit 8 were determined from assigning the costs in the Mixing Department. These amounts were computed and are shown at the bottom of the cost of production report for the Mixing Department in Exhibit 7 on page 930. Likewise, the amount transferred out of the Packaging Department to Finished Goods would have also been determined from a cost of production report for the Packaging Department.

EXHIBIT 8 **Frozen Delight's Cost Flows**



The ending inventories for Frozen Delight are reported on the July 31 balance sheet as follows:

Materials	$ 6,875
Work in Process—Mixing Department	3,525
Work in Process—Packaging Department	7,725
Finished Goods	4,000
Total inventories	$22,125

The $3,525 of Work in Process—Mixing Department is the amount determined from the bottom of the cost of production report in Exhibit 7.

Example Exercise 20-7 Process Cost Journal Entries

OBJ. 3

The cost of materials transferred into the Bottling Department of Rocky Springs Beverage Company is $22,800, including $20,000 from the Blending Department and $2,800 from the materials storeroom. The conversion cost for the period in the Bottling Department is $8,790 ($3,790 factory overhead applied and $5,000 direct labor). The total cost transferred to Finished Goods for the period was $31,980. The Bottling Department had a beginning inventory of $1,860.

a. Journalize (1) the cost of transferred-in materials, (2) conversion costs, and (3) the costs transferred out to Finished Goods.

b. Determine the balance of Work in Process—Bottling at the end of the period.

Follow My Example 20-7

a. 1.	Work in Process—Bottling	22,800	
	Work in Process—Blending		20,000
	Materials		2,800
2.	Work in Process—Bottling	8,790	
	Factory Overhead—Bottling		3,790
	Wages Payable		5,000
3.	Finished Goods	31,980	
	Work in Process—Bottling		31,980

b. $1,470 ($1,860 + $22,800 + $8,790 − $31,980)

Practice Exercises: **PE 20-7A, PE 20-7B**

Using the Cost of Production Report for Decision Making

OBJ. 4 Describe and illustrate the use of cost of production reports for decision making.

The cost of production report is often used by managers for decisions involving the control and improvement of operations. To illustrate, cost of production reports for Frozen Delight and Holland Beverage Company are used. Finally, the computation and use of yield is discussed.

Frozen Delight

The cost of production report for the Mixing Department is shown in Exhibit 7 on page 930. The cost per equivalent unit for June can be determined from the beginning inventory. The Frozen Delight data on page 920 indicate that the July 1 inventory in process of $6,225 consists of the following costs:

Direct materials cost, 5,000 gallons	$5,000
Conversion costs, 5,000 gallons, 70% completed	1,225
Total inventory in process, July 1	$6,225

Using the preceding data, the June costs per equivalent unit of materials and conversion costs can be determined as follows:

$$\text{Direct Materials Cost per Equivalent Unit} = \frac{\text{Total Direct Materials Cost for the Period}}{\text{Total Equivalent Units of Direct Materials}}$$

$$\text{Direct Materials Cost per Equivalent Unit} = \frac{\$5{,}000}{5{,}000 \text{ gallons}} = \$1.00 \text{ per gallon}$$

$$\text{Conversion Cost per Equivalent Unit} = \frac{\text{Total Conversion Costs for the Period}}{\text{Total Equivalent Units of Conversion Costs}}$$

$$\text{Conversion Cost per Equivalent Unit} = \frac{\$1{,}225}{(5{,}000 \times 70\%)\text{ gallons}} = \$0.35\text{ per gallon}$$

In July, the cost per equivalent unit of materials increased by $0.10 per gallon, while the cost per equivalent unit for conversion costs decreased by $0.05 per gallon, as shown below.

	July*	June	Increase (Decrease)
Cost per equivalent unit for direct materials	$1.10	$1.00	$0.10
Cost per equivalent unit for conversion costs	0.30	0.35	(0.05)

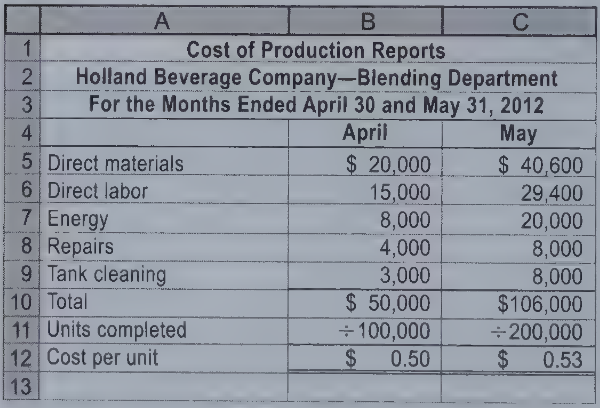
*From Exhibit 7, p. 930

Frozen Delight's management could use the preceding analysis as a basis for investigating the increase in the direct materials cost per equivalent unit and the decrease in the conversion cost per equivalent unit.

Holland Beverage Company

A cost of production report may be prepared showing more cost categories beyond just direct materials and conversion costs. This greater detail can help managers isolate problems and seek opportunities for improvement.

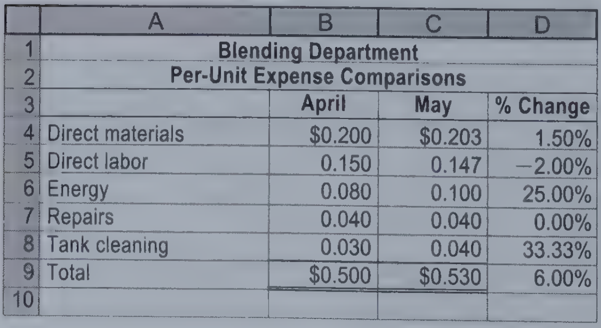
To illustrate, the Blending Department of Holland Beverage Company prepared cost of production reports for April and May. To simplify, assume that the Blending Department had no beginning or ending work in process inventory in either month. That is, all units started were completed in each month. The cost of production reports showing multiple cost categories for April and May in the Blending Department are as follows:



Cost of Production Reports
Holland Beverage Company—Blending Department
For the Months Ended April 30 and May 31, 2012

	April	May
Direct materials	$ 20,000	$ 40,600
Direct labor	15,000	29,400
Energy	8,000	20,000
Repairs	4,000	8,000
Tank cleaning	3,000	8,000
Total	$ 50,000	$106,000
Units completed	÷100,000	÷200,000
Cost per unit	$ 0.50	$ 0.53

The May results indicate that total unit costs have increased from $0.50 to $0.53, or 6% from April. To determine the possible causes for this increase, the cost of production report is restated in per-unit terms by dividing the costs by the number of units completed, as shown below.



Blending Department
Per-Unit Expense Comparisons

	April	May	% Change
Direct materials	$0.200	$0.203	1.50%
Direct labor	0.150	0.147	−2.00%
Energy	0.080	0.100	25.00%
Repairs	0.040	0.040	0.00%
Tank cleaning	0.030	0.040	33.33%
Total	$0.500	$0.530	6.00%

Both energy and tank cleaning per-unit costs have increased significantly in May. These increases should be further investigated. For example, the increase in energy may be due to the machines losing fuel efficiency. This could lead management to repair the machines. The tank cleaning costs could be investigated in a similar fashion.

Yield

In addition to unit costs, managers of process manufacturers are also concerned about yield. The **yield** is computed as follows:

$$\text{Yield} = \frac{\text{Quantity of Material Output}}{\text{Quantity of Material Input}}$$

To illustrate, assume that 1,000 pounds of sugar enter the Packaging Department, and 980 pounds of sugar were packed. The yield is 98% as computed below.

$$\text{Yield} = \frac{\text{Quantity of Material Output}}{\text{Quantity of Material Input}} = \frac{\text{980 pounds}}{\text{1,000 pounds}} = 98\%$$

Thus, two percent (100% – 98%) or 20 pounds of sugar was lost or spilled during the packing process. Managers can investigate significant changes in yield over time or significant differences in yield from industry standards.

Example Exercise 20-8 Using Process Costs for Decision Making

OBJ. 4

The cost of energy consumed in producing good units in the Bottling Department of Rocky Springs Beverage Company was $4,200 and $3,700 for March and April, respectively. The number of equivalent units produced in March and April was 70,000 liters and 74,000 liters, respectively. Evaluate the change in the cost of energy between the two months.

Follow My Example 20-8

$$\text{Energy cost per liter, March} = \frac{\$4{,}200}{\text{70,000 liters}} = \$0.06$$

$$\text{Energy cost per liter, April} = \frac{\$3{,}700}{\text{74,000 liters}} = \$0.05$$

The cost of energy has improved by 1 cent per liter between March and April.

Practice Exercises: **PE 20-8A, PE 20-8B**

Just-in-Time Processing

OBJ. 5 Compare just-in-time processing with traditional manufacturing processing.

The objective of most manufacturers is to produce products with high quality, low cost, and instant availability. In attempting to achieve this objective, many manufacturers have implemented just-in-time processing. **Just-in-time (JIT) processing** is a management approach that focuses on reducing time and cost and eliminating poor quality. A JIT system obtains efficiencies and flexibility by reorganizing the traditional production process.

A traditional manufacturing process for a furniture manufacturer is shown in Exhibit 9. The product (chair) moves through seven processes. In each process, workers are assigned a specific job, which is performed repeatedly as unfinished products are received from the preceding department. The product moves from process to process as each function or step is completed.

EXHIBIT 9 Traditional Production Line

For the furniture maker in Exhibit 9, the product (chair) moves through the following processes:

1. In the Cutting Department, the wood is cut to design specifications.
2. In the Drilling Department, the wood is drilled to design specifications.
3. In the Sanding Department, the wood is sanded.
4. In the Staining Department, the wood is stained.
5. In the Varnishing Department, varnish and other protective coatings are applied.
6. In the Upholstery Department, fabric and other materials are added.
7. In the Assembly Department, the product (chair) is assembed.

In the traditional production process, supervisors enter materials into manufacturing so as to keep all the manufacturing departments (processes) operating. Some departments, however, may process materials more rapidly than others. In addition, if one department stops because of machine breakdowns, for example, the preceding departments usually continue production in order to avoid idle time. In such cases, a buildup of work in process inventories results in some departments.

In a just-in-time system, processing functions are combined into work centers, sometimes called **manufacturing cells**. For example, the seven departments illustrated in Exhibit 9 might be reorganized into the following three work centers:

1. Work Center 1 performs the cutting, drilling, and sanding functions.
2. Work Center 2 performs the staining and varnishing functions.
3. Work Center 3 performs the upholstery and assembly functions.

The preceding JIT manufacturing process is illustrated in Exhibit 10.

EXHIBIT 10

Just-in-Time Production Line

In traditional manufacturing, a worker typically performs only one function. However, in JIT manufacturing, work centers complete several functions. Thus, workers are often cross-trained to perform more than one function. Research has indicated that workers who perform several functions identify better with the end product. This creates pride in the product and improves quality and productivity.

The activities supporting the manufacturing process are called *service activities*. For example, repair and maintenance of manufacturing equipment are service activities. In a JIT manufacturing process, service activities may be assigned to individual work centers, rather than to centralized service departments. For example, each work center may be assigned responsibility for the repair and maintenance of its machinery and equipment. This creates an environment in which workers gain a better understanding of the production process and their machinery. In turn, workers tend to take better care of the machinery, which decreases repairs and maintenance costs, reduces machine downtime, and improves product quality.

In a JIT system, the product is often placed on a movable carrier that is centrally located in the work center. After the workers in a work center have completed their activities with the product, the entire carrier and any additional materials are moved just in time to satisfy the demand or need of the next work center. In this sense, the product is said to be "pulled through." Each work center is connected to other work centers through information contained on a Kanban, which is a Japanese term for cards.

In summary, the primary objective of JIT systems is to increase the efficiency of operations. This is achieved by eliminating waste and simplifying the production process. At the same time, JIT systems emphasize continually improving the manufacturing process and product quality.

Before Caterpillar implemented JIT, a transmission traveled 10 miles through the factory and required 1,000 pieces of paper to support the manufacturing process. After implementing JIT, a transmission travels only 200 feet and requires only 10 pieces of paper.

BusinessConnection

RADICAL IMPROVEMENT: JUST IN TIME FOR PULASKI'S CUSTOMERS

Pulaski Furniture Corporation embraced just-in-time manufacturing principles and revolutionized its business. The company wanted to "be easier to do business with" by offering its customers smaller shipments more frequently. It was able to accomplish this by taking the following steps:

- Mapping processes to properly align labor, machines, and materials.
- Eliminating 100 feet of conveyor line.
- Moving machines into manufacturing cells.
- Reducing manufacturing run sizes by simplifying the product design.
- Making every product more frequently in order to reduce the customer's waiting time for a product.

As a result of these just-in-time changes, the company significantly improved its inventory position while simultaneously improving its shipping times to the customer. Its lumber inventory was reduced by 25%, finished goods inventory was reduced by 40%, and work in process inventory was reduced by 50%. At the same time, customers' shipment waiting times were shortened from months to weeks.

Source: Jeff Linville, "Pulaski's Passion for Lean Plumps up Dealer Service," *Furniture Today*, June 2006.

Comprehensive Spreadsheet Illustration

Southern Aggregate Company manufactures concrete through a series of processes. All materials are introduced in Crushing. From Crushing, the materials pass through Sifting, Baking, and Mixing, emerging as finished concrete. All inventories are costed by the first-in, first-out method.

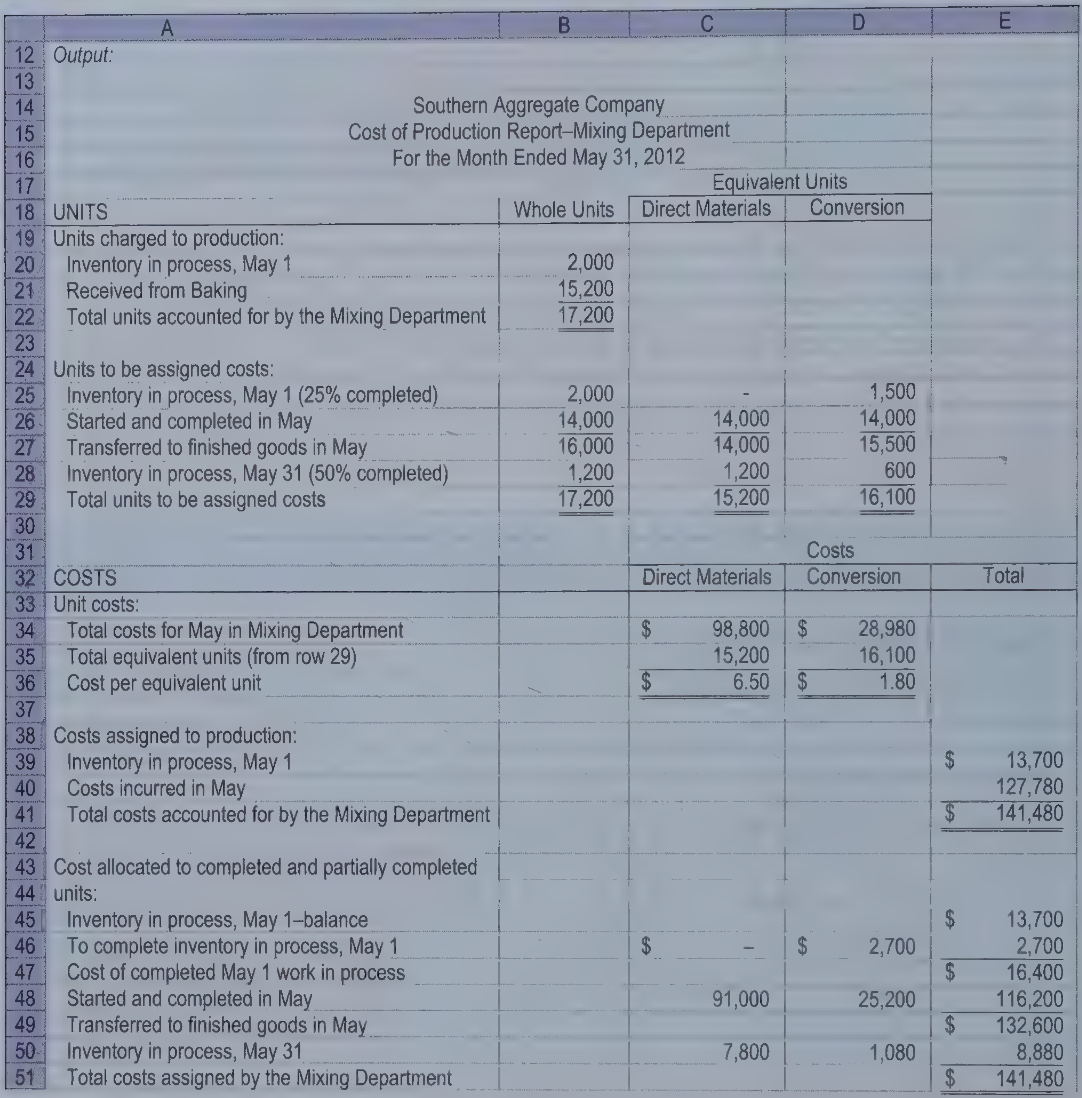
The following information has been prepared on a spreadsheet as follows:

	A	B	C	D
1	*Inputs:*			
2				
3	Work in Process–Mixing Department			
4		Units	Amount	Percent Complete
5	Work in Process, May 1, 2012	2,000	$ 13,700	25%
6	Direct materials transferred from Baking	15,200	98,800	
7	Direct labor		17,200	
8	Factory overhead		11,780	
9				
10	Work in Process, May 31, 2012	1,200		50%

Instructions

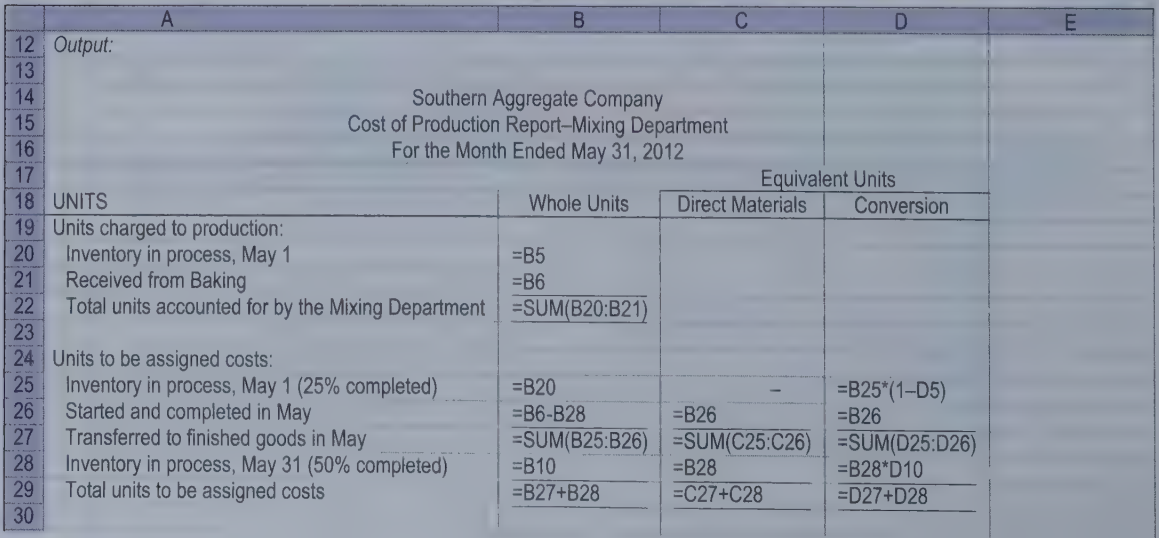
Using the input information, prepare a cost of production report for the Mixing Department in a spreadsheet.

Solution

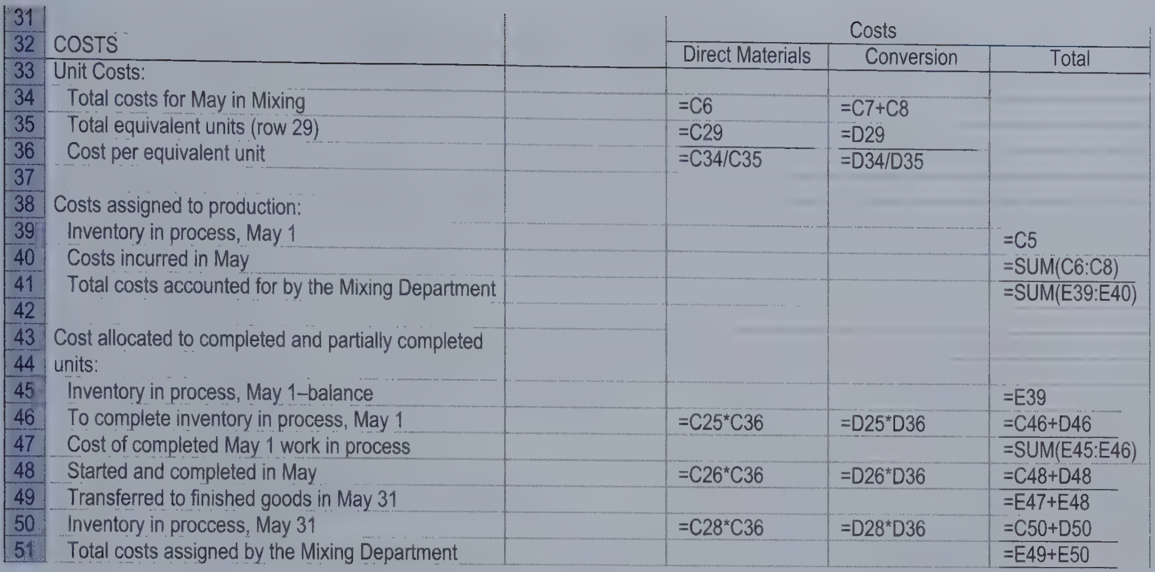


	A	B	C	D	E
12	*Output:*				
13					
14	Southern Aggregate Company				
15	Cost of Production Report–Mixing Department				
16	For the Month Ended May 31, 2012				
17			Equivalent Units		
18	UNITS	Whole Units	Direct Materials	Conversion	
19	Units charged to production:				
20	Inventory in process, May 1	2,000			
21	Received from Baking	15,200			
22	Total units accounted for by the Mixing Department	17,200			
23					
24	Units to be assigned costs:				
25	Inventory in process, May 1 (25% completed)	2,000	-	1,500	
26	Started and completed in May	14,000	14,000	14,000	
27	Transferred to finished goods in May	16,000	14,000	15,500	
28	Inventory in process, May 31 (50% completed)	1,200	1,200	600	
29	Total units to be assigned costs	17,200	15,200	16,100	
30					
31			Costs		
32	COSTS		Direct Materials	Conversion	Total
33	Unit costs:				
34	Total costs for May in Mixing Department		$ 98,800	$ 28,980	
35	Total equivalent units (from row 29)		15,200	16,100	
36	Cost per equivalent unit		$ 6.50	$ 1.80	
37					
38	Costs assigned to production:				
39	Inventory in process, May 1				$ 13,700
40	Costs incurred in May				127,780
41	Total costs accounted for by the Mixing Department				$ 141,480
42					
43	Cost allocated to completed and partially completed				
44	units:				
45	Inventory in process, May 1–balance				$ 13,700
46	To complete inventory in process, May 1		$ –	$ 2,700	2,700
47	Cost of completed May 1 work in process				$ 16,400
48	Started and completed in May		91,000	25,200	116,200
49	Transferred to finished goods in May				$ 132,600
50	Inventory in process, May 31		7,800	1,080	8,880
51	Total costs assigned by the Mixing Department				$ 141,480

The formulas used to create the cost of production report are as follows:



	A	B	C	D	E
12	*Output:*				
13					
14	Southern Aggregate Company				
15	Cost of Production Report–Mixing Department				
16	For the Month Ended May 31, 2012				
17			Equivalent Units		
18	UNITS	Whole Units	Direct Materials	Conversion	
19	Units charged to production:				
20	Inventory in process, May 1	=B5			
21	Received from Baking	=B6			
22	Total units accounted for by the Mixing Department	=SUM(B20:B21)			
23					
24	Units to be assigned costs:				
25	Inventory in process, May 1 (25% completed)	=B20	–	=B25*(1–D5)	
26	Started and completed in May	=B6-B28	=B26	=B26	
27	Transferred to finished goods in May	=SUM(B25:B26)	=SUM(C25:C26)	=SUM(D25:D26)	
28	Inventory in process, May 31 (50% completed)	=B10	=B28	=B28*D10	
29	Total units to be assigned costs	=B27+B28	=C27+C28	=D27+D28	
30					



		Costs		
31				
32	COSTS	Direct Materials	Conversion	Total
33	Unit Costs:			
34	Total costs for May in Mixing	=C6	=C7+C8	
35	Total equivalent units (row 29)	=C29	=D29	
36	Cost per equivalent unit	=C34/C35	=D34/D35	
37				
38	Costs assigned to production:			
39	Inventory in process, May 1			=C5
40	Costs incurred in May			=SUM(C6:C8)
41	Total costs accounted for by the Mixing Department			=SUM(E39:E40)
42				
43	Cost allocated to completed and partially completed			
44	units:			
45	Inventory in process, May 1–balance			=E39
46	To complete inventory in process, May 1	=C25*C36	=D25*D36	=C46+D46
47	Cost of completed May 1 work in process			=SUM(E45:E46)
48	Started and completed in May	=C26*C36	=D26*D36	=C48+D48
49	Transferred to finished goods in May 31			=E47+E48
50	Inventory in proccess, May 31	=C28*C36	=D28*D36	=C50+D50
51	Total costs assigned by the Mixing Department			=E49+E50

The cell formulas follow the steps outlined within the chapter for developing the cost of production report. Note that the complete cost of production report uses cell references. There are no number inputs into the report. Rather, the report will work for any and all input combinations.

APPENDIX

Average Cost Method

A cost flow assumption must be used as product costs flow through manufacturing processes. In this chapter, the first-in, first-out cost flow method was used for the Mixing Department of Frozen Delight. In this appendix, the average cost flow method is illustrated for S&W Ice Cream Company (S&W).

Determining Costs Using the Average Cost Method

S&W's operations are similar to those of Frozen Delight. Like Frozen Delight, S&W mixes direct materials (milk, cream, sugar) in refrigerated vats and has two manufacturing departments, Mixing and Packaging.

The manufacturing data for the Mixing Department for July 2012 are as follows:

Inventory in process, July 1, 5,000 gallons (70% completed)	$ 6,200
Direct materials cost incurred in July, 60,000 gallons	66,000
Direct labor cost incurred in July	10,500
Factory overhead applied in July	6,405
Total production costs to account for	$89,105
Cost of goods transferred to Packaging in July (includes units in process on July 1), 62,000 gallons	?
Cost of work in process inventory, July 31, 3,000 gallons, 25% completed as to conversion costs	?

Using the average cost method, the objective is to allocate the total costs of production of $89,105 to the following:

1. The 62,000 gallons completed and transferred to the Packaging Department
2. The 3,000 gallons in the July 31 (ending) work in process inventory

The preceding costs show two question marks. These amounts are determined by preparing a cost of production report using the following four steps:

Step 1. Determine the units to be assigned costs.
Step 2. Compute equivalent units of production.
Step 3. Determine the cost per equivalent unit.
Step 4. Allocate costs to transferred out and partially completed units.

Under the average cost method, all production costs (materials and conversion costs) are combined together for determining equivalent units and cost per equivalent unit.

Step 1: Determine the Units to Be Assigned Costs The first step is to determine the units to be assigned costs. A unit can be any measure of completed production, such as tons, gallons, pounds, barrels, or cases. For S&W, a unit is a gallon of ice cream.

S&W's Mixing Department had 65,000 gallons of direct materials to account for during July, as shown here.

Total gallons to account for:	
Inventory in process, July 1	5,000 gallons
Received from materials storeroom	60,000
Total units to account for by the Packaging Department	65,000 gallons

There are two groups of units to be assigned costs for the period.

Group 1	Units completed and transferred out
Group 2	Units in the July 31 (ending) work in process inventory

During July, the Mixing Department completed and transferred 62,000 gallons to the Packaging Department. Of the 60,000 gallons started in July, 57,000 (60,000 − 3,000) gallons were completed and transferred to the Packaging Department. Thus, the ending work in process inventory consists of 3,000 gallons.

The total units (gallons) to be assigned costs for S&W can be summarized as follows:

Group 1	Units transferred out to the Packaging Department in July	62,000 gallons
Group 2	Inventory in process, July 31	3,000
	Total gallons to be assigned costs	65,000 gallons

The total units (gallons) to be assigned costs (65,000 gallons) equal the total units to account for (65,000 gallons).

Step 2: Compute Equivalent Units of Production S&W has 3,000 gallons of whole units in the work in process inventory for the Mixing Department on July 31. Since these units are 25% complete, the number of equivalent units in process in the Mixing Department on July 31 is 750 gallons (3,000 gallons × 25%). Since the units transferred to the Packaging Department have been completed, the whole units (62,000 gallons) transferred are the same as the equivalent units transferred.

The total equivalent units of production for the Mixing Department are determined by adding the equivalent units in the ending work in process inventory to the units transferred and completed during the period as shown below.

Equivalent units completed and transferred to the Packaging Department during July	62,000 gallons
Equivalent units in ending work in process, July 31	750
Total equivalent units	62,750 gallons

Step 3: Determine the Cost per Equivalent Unit Since materials and conversion costs are combined under the average cost method, the cost per equivalent unit is determined by dividing the total production costs by the total equivalent units of production as follows:

$$\text{Cost per Equivalent Unit} = \frac{\text{Total Production Costs}}{\text{Total Equivalent Units}}$$

$$\text{Cost per Equivalent Unit} = \frac{\text{Total Production Costs}}{\text{Total Equivalent Units}} = \frac{\$89{,}105}{62{,}750 \text{ gallons}} = \$1.42$$

The cost per equivalent unit shown above is used in Step 4 to allocate the production costs to the completed and partially completed units.

Step 4: Allocate Costs to Transferred Out and Partially Completed Units

The cost of transferred and partially completed units is determined by multiplying the cost per equivalent unit times the equivalent units of production. For the Mixing Department, these costs are determined as follows:

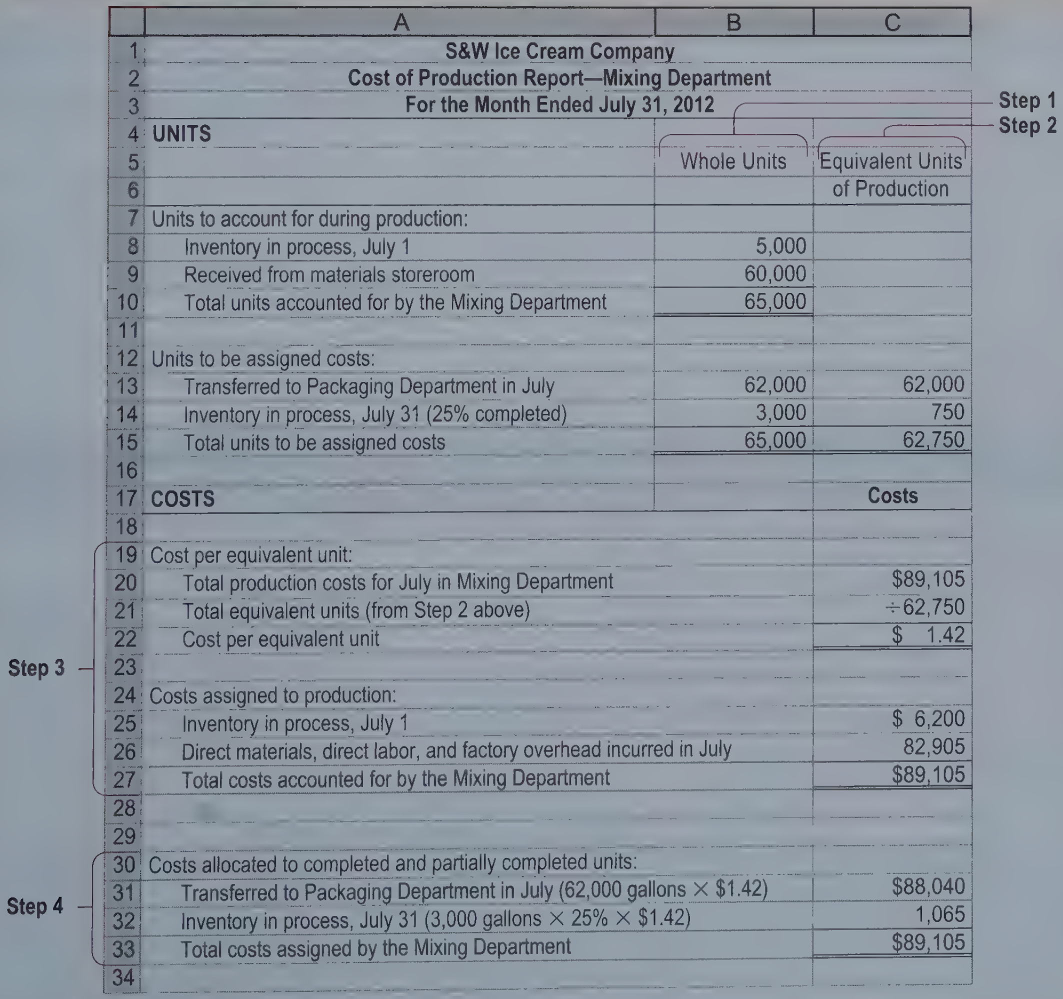
Group 1	Transferred out to the Packaging Department (62,000 gallons × $1.42)	$88,040
Group 2	Inventory in process, July 31 (3,000 gallons × 25% × $1.42).................	1,065
	Total production costs assigned	$89,105

The Cost of Production Report

The July cost of production report for S&W's Mixing Department is shown in Exhibit 11. This cost of production report summarizes the following:

1. The units for which the department is accountable and the disposition of those units
2. The production costs incurred by the department and the allocation of those costs between completed and partially completed units

EXHIBIT 11 Cost of Production Report for S&W's Mixing Department—Average Cost



	A	B	C
1	S&W Ice Cream Company		
2	Cost of Production Report—Mixing Department		
3	For the Month Ended July 31, 2012		
4	UNITS		
5		Whole Units	Equivalent Units
6			of Production
7	Units to account for during production:		
8	Inventory in process, July 1	5,000	
9	Received from materials storeroom	60,000	
10	Total units accounted for by the Mixing Department	65,000	
11			
12	Units to be assigned costs:		
13	Transferred to Packaging Department in July	62,000	62,000
14	Inventory in process, July 31 (25% completed)	3,000	750
15	Total units to be assigned costs	65,000	62,750
16			
17	COSTS		Costs
18			
19	Cost per equivalent unit:		
20	Total production costs for July in Mixing Department		$89,105
21	Total equivalent units (from Step 2 above)		÷62,750
22	Cost per equivalent unit		$ 1.42
23			
24	Costs assigned to production:		
25	Inventory in process, July 1		$ 6,200
26	Direct materials, direct labor, and factory overhead incurred in July		82,905
27	Total costs accounted for by the Mixing Department		$89,105
28			
29			
30	Costs allocated to completed and partially completed units:		
31	Transferred to Packaging Department in July (62,000 gallons × $1.42)		$88,040
32	Inventory in process, July 31 (3,000 gallons × 25% × $1.42)		1,065
33	Total costs assigned by the Mixing Department		$89,105
34			

At a Glance 20

OBJ. 1 Describe process cost systems.

Key Points The process cost system is best suited for industries that mass produce identical units of a product. Costs are charged to processing departments, rather than to jobs as with the job order cost system. These costs are transferred from one department to the next until production is completed.

Learning Outcomes	Example Exercises	Practice Exercises
• Identify the characteristics of a process manufacturer.		
• Compare and contrast the job order cost system with the process cost system.	EE20-1	PE20-1A, 20-1B
• Describe the physical and cost flows of a process manufacturer.		

OBJ. 2 Prepare a cost of production report.

Key Points Manufacturing costs must be allocated between the units that have been completed and those that remain within the department. This allocation is accomplished by allocating costs using equivalent units of production.

Learning Outcomes	Example Exercises	Practice Exercises
• Determine the whole units charged to production and to be assigned costs.	EE20-2	PE20-2A, 20-2B
• Compute the equivalent units with respect to materials.	EE20-3	PE20-3A, 20-3B
• Compute the equivalent units with respect to conversion.	EE20-4	PE20-4A, 20-4B
• Compute the costs per equivalent unit.	EE20-5	PE20-5A, 20-5B
• Allocate the costs to beginning inventory, units started and completed, and ending inventory.	EE20-6	PE20-6A, 20-6B
• Prepare a cost of production report.		

OBJ. 3 Journalize entries for transactions using a process cost system.

Key Points Prepare the summary journal entries for materials, labor, applied factory overhead, and transferred costs incurred in production.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare journal entries for process costing transactions.	EE20-7	PE20-7A, 20-7B
• Summarize cost flows in T account form.		
• Compute the ending inventory balances.		

OBJ 4 Describe and illustrate the use of cost of production reports for decision making.

Key Points The cost of production report provides information for controlling and improving operations. The report(s) can provide details of a department for a single period, or over a period of time.

Yield measures the quantity of output of production relative to the inputs.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare and evaluate a report showing the change in costs per unit by cost category for comparative periods.	EE20-8	PE20-8A, 20-8B
• Compute and interpret yield.		

OBJ 5 Compare just-in-time processing with traditional manufacturing processing.

Key Points The just-in-time processing philosophy focuses on reducing time, cost, and poor quality within the process.

Learning Outcome

- Identify the characteristics of a just-in-time process.

Key Terms

cost of production report (918)
cost per equivalent unit (925)
equivalent units of production (921)
first-in, first-out (FIFO) method (920)
just-in-time (JIT) processing (935)
manufacturing cells (936)
process cost system (914)
process manufacturer (914)
whole units (921)
yield (935)

Illustrative Problem

Southern Aggregate Company manufactures concrete by a series of four processes. All materials are introduced in Crushing. From Crushing, the materials pass through Sifting, Baking, and Mixing, emerging as finished concrete. All inventories are costed by the first-in, first-out method.

The balances in the accounts Work in Process—Mixing and Finished Goods were as follows on May 1, 2012:

Inventory in Process—Mixing (2,000 units, 1/4 completed)	$13,700
Finished Goods (1,800 units at $8.00 a unit)	14,400

The following costs were charged to Work in Process—Mixing during May:

Direct materials transferred from Baking: 15,200 units at $6.50 a unit	$98,800
Direct labor	17,200
Factory overhead	11,780

During May, 16,000 units of concrete were completed, and 15,800 units were sold. Inventories on May 31 were as follows:

Inventory in Process—Mixing: 1,200 units, 1/2 completed
Finished Goods: 2,000 units

Instructions

1. Prepare a cost of production report for the Mixing Department.
2. Determine the cost of goods sold (indicate number of units and unit costs).
3. Determine the finished goods inventory, May 31, 2012.

Solution

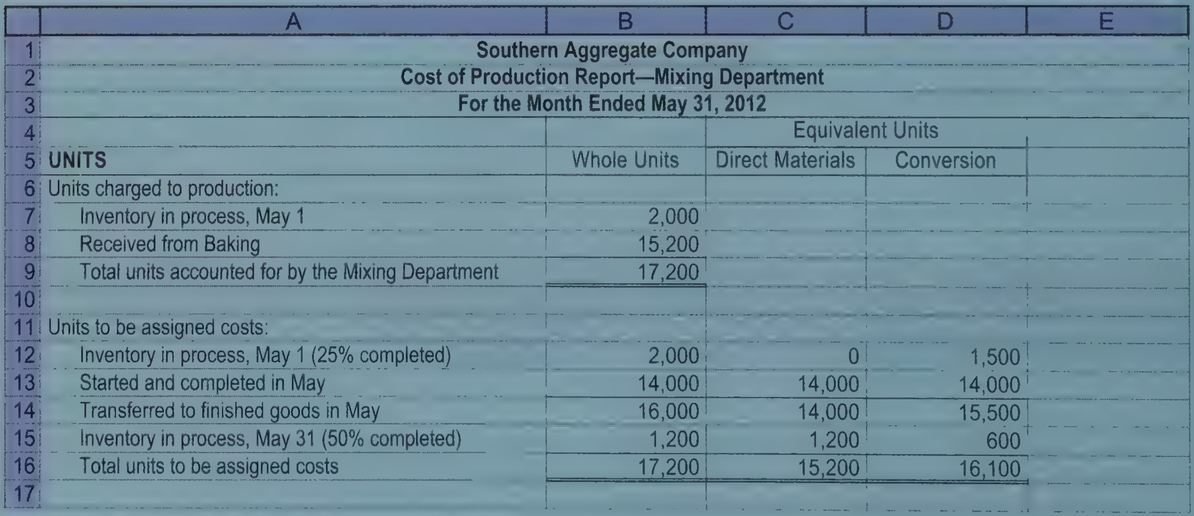
1. See page 941 for the cost of production report.
2. Cost of goods sold:

1,800 units at $8.00	$ 14,400	(from finished goods beginning inventory)
2,000 units at $8.20*	16,400	(from inventory in process beginning inventory)
12,000 units at $8.30**	99,600	(from May production started and completed)
15,800 units	$130,400	

*($13,700 + $2,700)/2,000
**$116,200/14,000

3. Finished goods inventory, May 31:

2,000 units at $8.30 $16,600



	A	B	C	D	E
1	**Southern Aggregate Company**				
2	**Cost of Production Report—Mixing Department**				
3	**For the Month Ended May 31, 2012**				
4			Equivalent Units		
5	UNITS	Whole Units	Direct Materials	Conversion	
6	Units charged to production:				
7	Inventory in process, May 1	2,000			
8	Received from Baking	15,200			
9	Total units accounted for by the Mixing Department	17,200			
10					
11	Units to be assigned costs:				
12	Inventory in process, May 1 (25% completed)	2,000	0	1,500	
13	Started and completed in May	14,000	14,000	14,000	
14	Transferred to finished goods in May	16,000	14,000	15,500	
15	Inventory in process, May 31 (50% completed)	1,200	1,200	600	
16	Total units to be assigned costs	17,200	15,200	16,100	
17					

			Costs		
18					
19	**COSTS**		Direct Materials	Conversion	Total
20	Unit costs:				
21	Total costs for May in Mixing		$ 98,800	$ 28,980	
22	Total equivalent units (row 16)		÷15,200	÷16,100	
23	Cost per equivalent unit		$ 6.50	$ 1.80	
24					
25	Costs assigned to production:				
26	Inventory in process, May 1				$ 13,700
27	Costs incurred in May				127,780
28	Total costs accounted for by the Mixing Department				$141,480
29					
30	Cost allocated to completed and partially				
31	completed units:				
32	Inventory in process, May 1—balance				$ 13,700
33	To complete inventory in process, May 1		$ 0	$ 2,700[a]	2,700
34	Cost of completed May 1 work in process				$ 16,400
35	Started and completed in May		91,000[b]	25,200[c]	116,200
36	Transferred to finished goods in May				$132,600
37	Inventory in process, May 31		$ 7,800[d]	$ 1,080[e]	8,880
38	Total costs assigned by the Mixing Department				$141,480
39					

[a] 1,500 × $1.80 = $2,700 [b] 14,000 × $6.50 = $91,000 [c] 14,000 × $1.80 = $25,200 [d] 1,200 × $6.50 = $7,800 [e] 600 × $1.80 = $1,080

Discussion Questions

1. Which type of cost system, process or job order, would be best suited for each of the following: (a) TV assembler, (b) building contractor, (c) automobile repair shop, (d) paper manufacturer, (e) custom jewelry manufacturer? Give reasons for your answers.
2. In job order cost accounting, the three elements of manufacturing cost are charged directly to job orders. Why is it not necessary to charge manufacturing costs in process cost accounting to job orders?
3. In a job order cost system, direct labor and factory overhead applied are debited to individual jobs. How are these items treated in a process cost system and why?
4. Why is the cost per equivalent unit often determined separately for direct materials and conversion costs?
5. What is the purpose for determining the cost per equivalent unit?
6. Rameriz Company is a process manufacturer with two production departments, Blending and Filling. All direct materials are introduced in Blending from the materials store area. What is included in the cost transferred to Filling?
7. What is the most important purpose of the cost of production report?
8. How are cost of production reports used for controlling and improving operations?
9. How is "yield" determined for a process manufacturer?
10. How does just-in-time processing differ from the conventional manufacturing process?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 1 **EE 20-1** *p. 917*

PE 20-1A Job order vs. process costing

Which of the following industries would typically use job order costing, and which would typically use process costing?

- Flour mill
- Gasoline refining
- Movie studio
- Plastic manufacturing
- Print shop
- Home construction

OBJ. 1 **EE 20-1** *p. 917*

PE 20-1B Job order vs. process costing

Which of the following industries would typically use job order costing, and which would typically use process costing?

- Designer clothes manufacturing
- Business consulting
- Computer chip manufacturing
- Web designer
- Paper manufacturing
- Steel manufacturing

OBJ. 2 **EE 20-2** *p. 921*

PE 20-2A Units to be assigned costs

Rose Petal Lotion Company consists of two departments, Blending and Filling. The Filling Department received 46,000 ounces from the Blending Department. During the period, the Filling Department completed 46,500 ounces, including 2,300 ounces of work in process at the beginning of the period. The ending work in process inventory was 1,800 ounces. How many ounces were started and completed during the period?

OBJ. 2 **EE 20-2** *p. 921*

PE 20-2B Units to be assigned costs

Matco Steel Company has two departments, Casting and Rolling. In the Rolling Department, ingots from the Casting Department are rolled into steel sheet. The Rolling Department received 9,200 tons from the Casting Department. During the period, the Rolling Department completed 9,050 tons, including 380 tons of work in process at the beginning of the period. The ending work in process inventory was 530 tons. How many tons were started and completed during the period?

OBJ. 2 **EE 20-3** *p. 922*

PE 20-3A Equivalent units of materials cost

The Filling Department of Rose Petal Lotion Company had 2,300 ounces in beginning work in process inventory (70% complete). During the period, 46,500 ounces were completed. The ending work in process inventory was 1,800 ounces (25% complete). What are the total equivalent units for direct materials if materials are added at the beginning of the process?

OBJ. 2 **EE 20-3** *p. 922*

PE 20-3B Equivalent units of materials cost

The Rolling Department of Matco Steel Company had 380 tons in beginning work in process inventory (40% complete). During the period, 9,050 tons were completed. The ending work in process inventory was 530 tons (30% complete). What are the total equivalent units for direct materials if materials are added at the beginning of the process?

Learning Objectives *Example Exercises*

OBJ. 2 **EE 20-4** *p. 925*

PE 20-4A Equivalent units of conversion costs

The Filling Department of Rose Petal Lotion Company had 2,300 ounces in beginning work in process inventory (70% complete). During the period, 46,500 ounces were completed. The ending work in process inventory was 1,800 ounces (25% complete). What are the total equivalent units for conversion costs?

OBJ. 2 **EE 20-4** *p. 925*

PE 20-4B Equivalent units of conversion costs

The Rolling Department of Matco Steel Company had 380 tons in beginning work in process inventory (40% complete). During the period, 9,050 tons were completed. The ending work in process inventory was 530 tons (30% complete). What are the total equivalent units for conversion costs?

OBJ. 2 **EE 20-5** *p. 926*

PE 20-5A Cost per equivalent unit

The cost of direct materials transferred into the Filling Department of Rose Petal Lotion Company is $18,400. The conversion cost for the period in the Filling Department is $4,534. The total equivalent units for direct materials and conversion are 46,000 ounces and 45,340 ounces, respectively. Determine the direct materials and conversion costs per equivalent unit.

OBJ. 2 **EE 20-5** *p. 926*

PE 20-5B Cost per equivalent unit

The cost of direct materials transferred into the Rolling Department of Matco Steel Company is $506,000. The conversion cost for the period in the Rolling Department is $108,684. The total equivalent units for direct materials and conversion are 9,200 tons and 9,057 tons, respectively. Determine the direct materials and conversion costs per equivalent unit.

OBJ. 2 **EE 20-6** *p. 929*

PE 20-6A Cost of units transferred out and ending work in process

The costs per equivalent unit of direct materials and conversion in the Filling Department of Rose Petal Lotion Company are $0.40 and $0.10, respectively. The equivalent units to be assigned costs are as follows:

	Equivalent Units	
	Direct Materials	**Conversion**
Inventory in process, beginning of period	0	690
Started and completed during the period	44,200	44,200
Transferred out of Filling (completed)	44,200	44,890
Inventory in process, end of period	1,800	450
Total units to be assigned costs	46,000	45,340

The beginning work in process inventory had a cost of $1,100. Determine the cost of completed and transferred-out production and the ending work in process inventory.

OBJ. 2 **EE 20-6** *p. 929*

PE 20-6B Cost of units transferred out and ending work in process

The costs per equivalent unit of direct materials and conversion in the Rolling Department of Matco Steel Company are $55 and $12, respectively. The equivalent units to be assigned costs are as follows:

	Equivalent Units	
	Direct Materials	**Conversion**
Inventory in process, beginning of period	0	228
Started and completed during the period	8,670	8,670
Transferred out of Rolling (completed)	8,670	8,898
Inventory in process, end of period	530	159
Total units to be assigned costs	9,200	9,057

The beginning work in process inventory had a cost of $23,000. Determine the cost of completed and transferred-out production and the ending work in process inventory.

Learning Objectives *Example Exercises*

OBJ. 3 **EE 20-7** *p. 933*

PE 20-7A Process cost journal entries

The cost of materials transferred into the Filling Department of Rose Petal Lotion Company is $18,400, including $6,900 from the Blending Department and $11,500 from the materials storeroom. The conversion cost for the period in the Filling Department is $4,534 ($2,160 factory overhead applied and $2,374 direct labor). The total cost transferred to Finished Goods for the period was $23,269. The Filling Department had a beginning inventory of $1,100.

a. Journalize (1) the cost of transferred-in materials, (2) conversion costs, and (3) the costs transferred out to Finished Goods.

b. Determine the balance of Work in Process—Filling at the end of the period.

OBJ. 3 **EE 20-7** *p. 933*

PE 20-7B Process cost journal entries

The cost of materials transferred into the Rolling Department of Matco Steel Company is $506,000 from the Casting Department. The conversion cost for the period in the Rolling Department is $108,684 ($63,250 factory overhead applied and $45,434 direct labor). The total cost transferred to Finished Goods for the period was $606,626. The Rolling Department had a beginning inventory of $23,000.

a. Journalize (1) the cost of transferred-in materials, (2) conversion costs, and (3) the costs transferred out to Finished Goods.

b. Determine the balance of Work in Process—Rolling at the end of the period.

OBJ. 4 **EE 20-8** *p. 935*

PE 20-8A Using process costs for decision making

The costs of energy consumed in producing good units in the Baking Department were $15,680 and $15,400 for August and September, respectively. The number of equivalent units produced in August and September was 49,000 pounds and 44,000 pounds, respectively. Evaluate the change in the cost of energy between the two months.

OBJ. 4 **EE 20-8** *p. 935*

PE 20-8B Using process costs for decision making

The costs of materials consumed in producing good units in the Forming Department were $84,000 and $85,500 for May and June, respectively. The number of equivalent units produced in May and June was 700 tons and 750 tons, respectively. Evaluate the change in the cost of materials between the two months.

Exercises

OBJ. 1, 3

EX 20-1 Entries for materials cost flows in a process cost system

The Hershey Foods Company manufactures chocolate confectionery products. The three largest raw materials are cocoa, sugar, and dehydrated milk. These raw materials first go into the Blending Department. The blended product is then sent to the Molding Department, where the bars of candy are formed. The candy is then sent to the Packing Department, where the bars are wrapped and boxed. The boxed candy is then sent to the distribution center, where it is eventually sold to food brokers and retailers.

Show the accounts debited and credited for each of the following business events:

a. Materials used by the Blending Department.

b. Transfer of blended product to the Molding Department.

c. Transfer of chocolate to the Packing Department.

d. Transfer of boxed chocolate to the distribution center.

e. Sale of boxed chocolate.

OBJ. 1

EX 20-2 Flowchart of accounts related to service and processing departments

Alcoa Inc. is the world's largest producer of aluminum products. One product that Alcoa manufactures is aluminum sheet products for the aerospace industry. The entire output of the Smelting Department is transferred to the Rolling Department. Part of the fully processed goods from the Rolling Department are sold as rolled sheet, and the remainder of the goods are transferred to the Converting Department for further processing into sheared sheet.

Prepare a chart of the flow of costs from the processing department accounts into the finished goods accounts and then into the cost of goods sold account. The relevant accounts are as follows:

Cost of Goods Sold
Materials
Factory Overhead—Smelting Department
Factory Overhead—Rolling Department
Factory Overhead—Converting Department
Finished Goods—Rolled Sheet
Finished Goods—Sheared Sheet
Work in Process—Smelting Department
Work in Process—Rolling Department
Work in Process—Converting Department

OBJ. 1, 3

EX 20-3 Entries for flow of factory costs for process cost system

Domino Foods, Inc., manufactures a sugar product by a continuous process, involving three production departments—Refining, Sifting, and Packing. Assume that records indicate that direct materials, direct labor, and applied factory overhead for the first department, Refining, were $310,000, $118,000, and $81,400, respectively. Also, work in process in the Refining Department at the beginning of the period totaled $23,700, and work in process at the end of the period totaled $29,100.

Journalize the entries to record (a) the flow of costs into the Refining Department during the period for (1) direct materials, (2) direct labor, and (3) factory overhead, and (b) the transfer of production costs to the second department, Sifting.

OBJ. 1, 3

✔ a. 120%

EX 20-4 Factory overhead rate, entry for applying factory overhead, and factory overhead account balance

The chief cost accountant for Dr. Cinnamon Beverage Co. estimated that total factory overhead cost for the Blending Department for the coming fiscal year beginning April 1 would be $106,800, and total direct labor costs would be $89,000. During April, the actual direct labor cost totaled $7,500, and factory overhead cost incurred totaled $9,150.

a. What is the predetermined factory overhead rate based on direct labor cost?

b. Journalize the entry to apply factory overhead to production for April.

c. What is the April 30 balance of the account Factory Overhead—Blending Department?

d. Does the balance in part (c) represent overapplied or underapplied factory overhead?

OBJ. 2

✔ Direct materials, 16,240 units

EX 20-5 Equivalent units of production

The Converting Department of Soft N' Dry Towel and Tissue Company had 920 units in work in process at the beginning of the period, which were 75% complete. During the period, 16,200 units were completed and transferred to the Packing Department. There were 960 units in process at the end of the period, which were 25% complete. Direct materials are placed into the process at the beginning of production. Determine the number of equivalent units of production with respect to direct materials and conversion costs.

OBJ. 2

✔ a. Conversion, 82,270 units

EX 20-6 Equivalent units of production

Units of production data for the two departments of Atlantic Cable and Wire Company for June of the current fiscal year are as follows:

	Drawing Department	Winding Department
Work in process, June 1	6,200 units, 40% completed	2,600 units, 70% completed
Completed and transferred to next processing department during June	82,000 units	81,600 units
Work in process, June 30	5,000 units, 55% completed	3,000 units, 15% completed

If all direct materials are placed in process at the beginning of production, determine the direct materials and conversion equivalent units of production for June for (a) the Drawing Department and (b) the Winding Department.

OBJ. 2

✔ b. Conversion, 137,180

EX 20-7 Equivalent units of production

The following information concerns production in the Baking Department for May. All direct materials are placed in process at the beginning of production.

ACCOUNT *Work in Process—Baking Department* **ACCOUNT NO.**

					Balance	
Date		**Item**	**Debit**	**Credit**	**Debit**	**Credit**
May	1	Bal., 6,500 units, ⅖ completed			12,480	
	31	Direct materials, 135,000 units	229,500		241,980	
	31	Direct labor	62,300		304,280	
	31	Factory overhead	20,008		324,288	
	31	Goods finished, 137,200 units		315,430	8,858	
	31	Bal. ? units, ⅗ completed			8,858	

a. Determine the number of units in work in process inventory at the end of the month.

b. Determine the equivalent units of production for direct materials and conversion costs in May.

OBJ. 2, 4

✔ a. 2. Conversion cost per equivalent unit, $0.60

EX 20-8 Costs per equivalent unit

a. Based upon the data in Exercise 20-7, determine the following:
   1. Direct materials cost per equivalent unit.
   2. Conversion cost per equivalent unit.
   3. Cost of the beginning work in process completed during May.
   4. Cost of units started and completed during May.
   5. Cost of the ending work in process.

b. Assuming that the direct materials cost is the same for April and May, did the conversion cost per equivalent unit increase, decrease, or remain the same in May?

OBJ. 2

EX 20-9 Equivalent units of production

Kellogg Company manufactures cold cereal products, such as *Frosted Flakes*. Assume that the inventory in process on January 1 for the Packing Department included 750 pounds of cereal in the packing machine hopper, enough for 500 24-oz. boxes. In addition, there were 500 empty 24-oz. boxes held in the package carousel of the packing machine. During January, 41,500 boxes of 24-oz. cereal were packaged. Conversion costs are incurred when a box is filled with cereal. On January 31, the packing machine hopper held 960 pounds of cereal, and the package carousel held 640 empty 24-oz. (1½-pound) boxes. Assume that once a box is filled with cereal, it is immediately transferred to the finished goods warehouse.

Determine the equivalent units of production for cereal, boxes, and conversion costs for January. An equivalent unit is defined as "pounds" for cereal and "24-oz. boxes" for boxes and conversion costs.

OBJ. 2

✔ c. $3.60

EX 20-10 Costs per equivalent unit

Pacific Products Inc. completed and transferred 55,000 particle board units of production from the Pressing Department. There was no beginning inventory in process in the department. The ending in-process inventory was 1,400 units, which were ⅗ complete as to conversion cost. All materials are added at the beginning of the process. Direct materials cost incurred was $203,040, direct labor cost incurred was $38,900, and factory overhead applied was $28,108.

Determine the following for the Pressing Department:

a. Total conversion cost

b. Conversion cost per equivalent unit

c. Direct materials cost per equivalent unit

OBJ. 2

✔ a. 7,500 units

EX 20-11 Equivalent units of production and related costs

The charges to Work in Process—Assembly Department for a period, together with information concerning production, are as follows. All direct materials are placed in process at the beginning of production.

Work in Process— Assembly Department

Bal., 5,000 units, 35% completed	10,475	To Finished Goods, 105,500 units	?
Direct materials, 108,000 units @ $1.50	162,000		
Direct labor	145,300		
Factory overhead	47,525		
Bal. ? units, 45% completed	?		

Determine the following:

a. The number of units in work in process inventory at the end of the period.

b. Equivalent units of production for direct materials and conversion.

c. Costs per equivalent unit for direct materials and conversion.

d. Cost of the units started and completed during the period.

OBJ. 2, 4

✔ a. 1. $16,325

EX 20-12 Cost of units completed and in process

a. Based on the data in Exercise 20-11, determine the following:

  1. Cost of beginning work in process inventory completed this period.
  2. Cost of units transferred to finished goods during the period.
  3. Cost of ending work in process inventory.
  4. Cost per unit of the completed beginning work in process inventory, rounded to the nearest cent.

b. Did the production costs change from the preceding period? Explain.

c. Assuming that the direct materials cost per unit did not change from the preceding period, did the conversion costs per equivalent unit increase, decrease, or remain the same for the current period?

OBJ. 2

EX 20-13 Errors in equivalent unit computation

Golden Bear Refining Company processes gasoline. On April 1 of the current year, 5,000 units were ⅗ completed in the Blending Department. During April, 45,000 units entered the Blending Department from the Refining Department. During April, the units in process at the beginning of the month were completed. Of the 45,000 units entering the department, all were completed except 6,100 units that were ⅕ completed. The equivalent units for conversion costs for April for the Blending Department were computed as follows:

Equivalent units of production in April:	
To process units in inventory on April 1: 5,000 × ⅗	3,000
To process units started and completed in April: 45,000 – 5,000	40,000
To process units in inventory on April 30: 6,100 × ⅕	1,220
Equivalent units of production	44,220

List the errors in the computation of equivalent units for conversion costs for the Blending Department for April.

OBJ. 2

✔ a. 7,450 units

EX 20-14 Cost per equivalent unit

The following information concerns production in the Forging Department for September. All direct materials are placed into the process at the beginning of production, and

conversion costs are incurred evenly throughout the process. The beginning inventory consists of $11,250 of direct materials.

ACCOUNT *Work in Process—Forging Department* ACCOUNT NO.

Date		Item	Debit	Credit	Balance Debit	Balance Credit
Sept.	1	Bal., 750 units, 60% completed			13,185	
	30	Direct materials, 7,200 units	100,800		113,985	
	30	Direct labor	17,300		131,285	
	30	Factory overhead	17,980	?	149,265	
	30	Goods transferred, ? units			?	
	30	Bal., 500 units, 70% completed			?	

a. Determine the number of units transferred to the next department.

b. Determine the costs per equivalent unit of direct materials and conversion.

c. Determine the cost of units started and completed in September.

OBJ. 2, 4

✓ a. $14,625

EX 20-15 Costs per equivalent unit and production costs

Based on the data in Exercise 20-14, determine the following:

a. Cost of beginning work in process inventory completed in September.

b. Cost of units transferred to the next department during September.

c. Cost of ending work in process inventory on September 30.

d. Costs per equivalent unit of direct materials and conversion included in the September 1 beginning work in process.

e. The September increase or decrease in costs per equivalent unit for direct materials and conversion from the previous month.

OBJ. 2, 4

✓ d. $4,104

EX 20-16 Cost of production report

The debits to Work in Process—Roasting Department for St. Arbucks Coffee Company for July 2012, together with information concerning production, are as follows:

Work in process, July 1, 600 pounds, 20% completed		$ 2,418*
*Direct materials (600 × $3.80)	$2,280	
Conversion (600 × 20% × $1.15)	138	
	$2,418	
Coffee beans added during July, 23,000 pounds		82,800
Conversion costs during July		27,480
Work in process, July 31, 1,000 pounds, 42% completed		?
Goods finished during July, 22,600 pounds		?

All direct materials are placed in process at the beginning of production. Prepare a cost of production report, presenting the following computations:

a. Direct materials and conversion equivalent units of production for July.

b. Direct materials and conversion costs per equivalent unit for July.

c. Cost of goods finished during July.

d. Cost of work in process at July 31, 2012.

e. Compute and evaluate the change in cost per equivalent unit for direct materials and conversion from the previous month (June).

OBJ. 2, 4

✓ Conversion cost per equivalent unit, $4.00

EX 20-17 Cost of production report

The Cutting Department of Tangu Carpet Company provides the following data for December 2012. Assume that all materials are added at the beginning of the process.

Work in process, December 1, 9,000 units, 75% completed		$ 103,275*
*Direct materials (9,000 × $8.55)	$ 76,950	
Conversion (9,000 × 75% × $3.90)	26,325	
	$103,275	
Materials added during December from Weaving Department, 139,000 units		$1,209,300
Direct labor for December		289,300
Factory overhead for December		260,300
Goods finished during December (includes goods in process, December 1), 142,500 units		—
Work in process, December 31, 5,500 units, 30% completed		—

a. Prepare a cost of production report for the Cutting Department.

b. Compute and evaluate the change in the cost per equivalent unit for direct materials and conversion from the previous month (November).

OBJ. 1, 2, 3, 4

✔ b. $6,800

EX 20-18 Cost of production and journal entries

Airfoil Castings Inc. casts blades for turbine engines. Within the Casting Department, alloy is first melted in a crucible, then poured into molds to produce the castings. On March 1, there were 190 pounds of alloy in process, which were 60% complete as to conversion. The Work in Process balance for these 190 pounds was $25,536, determined as follows:

Direct materials (190 × $120)	$22,800
Conversion (190 × 60% × $24)	2,736
	$25,536

During March, the Casting Department was charged $237,500 for 1,900 pounds of alloy and $19,480 for direct labor. Factory overhead is applied to the department at a rate of 150% of direct labor. The department transferred out 2,040 pounds of finished castings to the Machining Department. The March 31 inventory in process was 44% complete as to conversion.

a. Prepare the following March journal entries for the Casting Department:
   1. The materials charged to production.
   2. The conversion costs charged to production.
   3. The completed production transferred to the Machining Department.

b. Determine the Work in Process—Casting Department March 31 balance.

c. Compute and evaluate the change in cost per equivalent unit for direct materials and conversion from the previous month (February).

OBJ. 1, 2, 3

✔ b. $22,806

EX 20-19 Cost of production and journal entries

Beacon Paper Company manufactures newsprint. The product is manufactured in two departments, Papermaking and Converting. Pulp is first placed into a vessel at the beginning of papermaking production. The following information concerns production in the Papermaking Department for January.

ACCOUNT *Work in Process—Papermaking Department* ACCOUNT NO.

Date		Item	Debit	Credit	Balance Debit	Balance Credit
Jan.	1	Bal., 3,400 units, 35% completed			15,300	
	31	Direct materials, 82,000 units	307,500		322,800	
	31	Direct labor	93,477		416,277	
	31	Factory overhead	81,600		497,877	
	31	Goods transferred, 81,200 units		?	?	
	31	Bal., 4,200 units, 80% completed			?	

a. Prepare the following January journal entries for the Papermaking Department:
   1. The materials charged to production.
   2. The conversion costs charged to production.

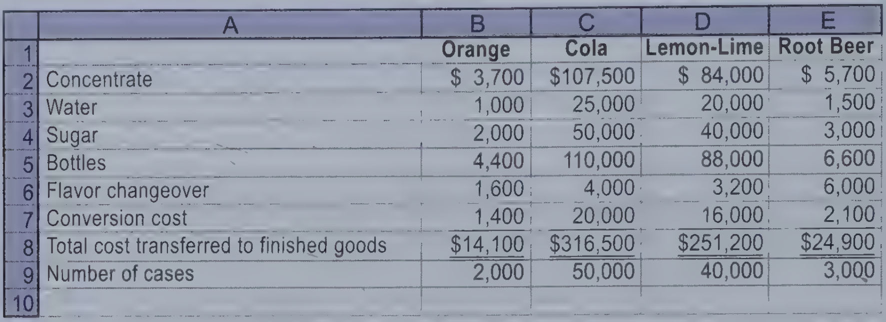
3. The completed production transferred to the Converting Department.

b. Determine the Work in Process—Papermaking Department January 31 balance.

OBJ. 4

EX 20-20 Decision making

Cool Springs Bottling Company bottles popular beverages in the Bottling Department. The beverages are produced by blending concentrate with water and sugar. The concentrate is purchased from a concentrate producer. The concentrate producer sets higher prices for the more popular concentrate flavors. Below is a simplified Bottling Department cost of production report separating the cost of bottling the four flavors.



	A	B	C	D	E
1		Orange	Cola	Lemon-Lime	Root Beer
2	Concentrate	$ 3,700	$107,500	$ 84,000	$ 5,700
3	Water	1,000	25,000	20,000	1,500
4	Sugar	2,000	50,000	40,000	3,000
5	Bottles	4,400	110,000	88,000	6,600
6	Flavor changeover	1,600	4,000	3,200	6,000
7	Conversion cost	1,400	20,000	16,000	2,100
8	Total cost transferred to finished goods	$14,100	$316,500	$251,200	$24,900
9	Number of cases	2,000	50,000	40,000	3,000
10					

Beginning and ending work in process inventories are negligible, so are omitted from the cost of production report. The flavor changeover cost represents the cost of cleaning the bottling machines between production runs of different flavors.

Prepare a memo to the production manager analyzing this comparative cost information. In your memo, provide recommendations for further action, along with supporting schedules showing the total cost per case and cost per case by cost element.

OBJ. 4

EX 20-21 Decision making

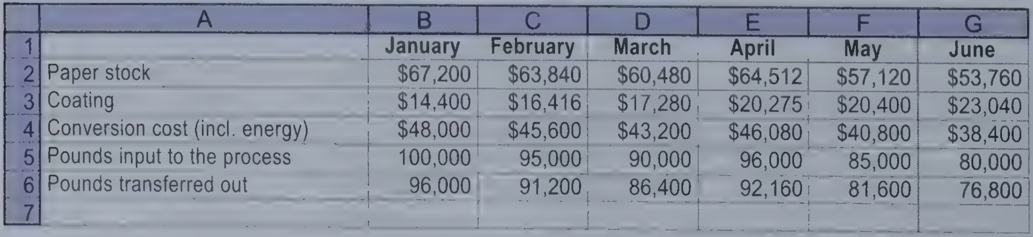
Instant Pix Inc. produces photographic paper for printing digital images. One of the processes for this operation is a coating (solvent spreading) operation, where chemicals are coated on to paper stock. There has been some concern about the cost performance of this operation. As a result, you have begun an investigation. You first discover that all materials and conversion prices have been stable for the last six months. Thus, increases in prices for inputs are not an explanation for increasing costs. However, you have discovered three possible problems from some of the operating personnel whose quotes follow:

Operator 1: "I've been keeping an eye on my operating room instruments. I feel as though our energy consumption is becoming less efficient."

Operator 2: "Every time the coating machine goes down, we produce waste on shutdown and subsequent startup. It seems like during the last half year we have had more unscheduled machine shutdowns than in the past. Thus, I feel as though our yields must be dropping."

Operator 3: "My sense is that our coating costs are going up. It seems to me like we are spreading a thicker coating than we should. Perhaps the coating machine needs to be recalibrated."

The Coating Department had no beginning or ending inventories for any month during the study period. The following data from the cost of production report are made available:



	A	B	C	D	E	F	G
1		January	February	March	April	May	June
2	Paper stock	$67,200	$63,840	$60,480	$64,512	$57,120	$53,760
3	Coating	$14,400	$16,416	$17,280	$20,275	$20,400	$23,040
4	Conversion cost (incl. energy)	$48,000	$45,600	$43,200	$46,080	$40,800	$38,400
5	Pounds input to the process	100,000	95,000	90,000	96,000	85,000	80,000
6	Pounds transferred out	96,000	91,200	86,400	92,160	81,600	76,800
7							

a. Prepare a table showing the paper cost per output pound, coating cost per output pound, conversion cost per output pound, and yield (pounds out/pounds input) for each month.

b. Interpret your table results.

OBJ. 5

EX 20-22 Just-in-time manufacturing

The following are some quotes provided by a number of managers at Ken-Tex Machining Company regarding the company's planned move toward a just-in-time manufacturing system:

Director of Sales: I'm afraid we'll miss some sales if we don't keep a large stock of items on hand just in case demand increases. It only makes sense to me to keep large inventories in order to assure product availability for our customers.

Director of Purchasing: I'm very concerned about moving to a just-in-time system for materials. What would happen if one of our suppliers were unable to make a shipment? A supplier could fall behind in production or have a quality problem. Without some safety stock in our materials, our whole plant would shut down.

Director of Manufacturing: If we go to just-in-time, I think our factory output will drop. We need in-process inventory in order to "smooth out" the inevitable problems that occur during manufacturing. For example, if a machine that is used to process a product breaks down, it would starve the next machine if I don't have in-process inventory between the two machines. If I have in-process inventory, then I can keep the next operation busy while I fix the broken machine. Thus, the in-process inventories give me a safety valve that I can use to keep things running when things go wrong.

How would you respond to these managers?

✔ a. 17,200

Appendix
EX 20-23 Equivalent units of production: average cost method

The Converting Department of Sydney Napkin Company uses the average cost method and had 1,600 units in work in process that were 60% complete at the beginning of the period. During the period, 16,200 units were completed and transferred to the Packing Department. There were 1,000 units in process that were 30% complete at the end of the period.

a. Determine the number of whole units to be accounted for and to be assigned costs for the period.

b. Determine the number of equivalent units of production for the period.

✔ a. 13,300 units to be accounted for

Appendix
EX 20-24 Equivalent units of production: average cost method

Units of production data for the two departments of Continental Cable and Wire Company for May of the current fiscal year are as follows:

	Drawing Department	Winding Department
Work in process, May 1	800 units, 50% completed	250 units, 30% completed
Completed and transferred to next processing department during May	12,700 units	12,550 units
Work in process, May 31	600 units, 55% completed	400 units, 25% completed

Each department uses the average cost method.

a. Determine the number of whole units to be accounted for and to be assigned costs and the equivalent units of production for the Drawing Department.

b. Determine the number of whole units to be accounted for and to be assigned costs and the equivalent units of production for the Winding Department.

✔ a. 8,500

Appendix
EX 20-25 Equivalent units of production: average cost method

The following information concerns production in the Finishing Department for March. The Finishing Department uses the average cost method.

ACCOUNT *Work in Process—Finishing Department* ACCOUNT NO.

Date		Item	Debit	Credit	Balance Debit	Balance Credit
Mar.	1	Bal., 12,500 units, 70% completed			44,000	
	31	Direct materials, 61,200 units	130,650		174,650	
	31	Direct labor	81,500		256,150	
	31	Factory overhead	82,600		338,750	
	31	Goods transferred, 65,200 units		326,000	12,750	
	31	Bal., ? units, 30% completed			12,750	

a. Determine the number of units in work in process inventory at the end of the month.

b. Determine the number of whole units to be accounted for and to be assigned costs and the equivalent units of production for March.

✔ b. 14,200 units

Appendix

EX 20-26 Equivalent units of production and related costs

The charges to Work in Process—Baking Department for a period as well as information concerning production are as follows. The Baking Department uses the average cost method, and all direct materials are placed in process during production.

Work in Process—Baking Department

Bal., 1,800 units, 40% completed	2,952	To Finished Goods, 13,000 units	?
Direct materials, 13,200 units	32,100		
Direct labor	16,160		
Factory overhead	8,428		
Bal., 2,000 units, 60% completed	?		

Determine the following:

a. The number of whole units to be accounted for and to be assigned costs.

b. The number of equivalent units of production.

c. The cost per equivalent unit.

d. The cost of units transferred to Finished Goods.

e. The cost of units in ending Work in Process.

✔ a. $22.50

Appendix

EX 20-27 Cost per equivalent unit: average cost method

The following information concerns production in the Forging Department for April. The Forging Department uses the average cost method.

ACCOUNT *Work in Process—Forging Department* ACCOUNT NO.

Date		Item	Debit	Credit	Balance Debit	Balance Credit
Apr.	1	Bal., 500 units, 40% completed			4,400	
	30	Direct materials, 4,900 units	56,075		60,475	
	30	Direct labor	31,600		92,075	
	30	Factory overhead	24,700		116,775	
	30	Goods transferred, 4,700 units		?	?	
	30	Bal., 700 units, 70% completed			?	

a. Determine the cost per equivalent unit.

b. Determine cost of units transferred to Finished Goods.

c. Determine the cost of units in ending Work in Process.

✔ Cost per equivalent unit, $4.00

Appendix

EX 20-28 Cost of production report: average cost method

The increases to Work in Process—Roasting Department for Boston Coffee Company for March 2012 as well as information concerning production are as follows:

Work in process, March 1, 650 pounds, 40% completed	$ 1,050
Coffee beans added during March, 12,300 pounds	32,170
Conversion costs during March	17,860
Work in process, March 31, 900 pounds, 80% completed	—
Goods finished during March, 12,050 pounds	—

Prepare a cost of production report, using the average cost method.

✔ Cost per equivalent unit, $12.00

Appendix

EX 20-29 Cost of production report: average cost method

Prepare a cost of production report for the Cutting Department of Tanner Carpet Company for December 2012. Use the average cost method with the following data:

Work in process, December 1, 4,500 units, 75% completed	$ 40,000
Materials added during December from Weaving Department, 85,000 units	699,300
Direct labor for December	169,410
Factory overhead for December	98,330
Goods finished during December (includes goods in process, December 1), 83,300 units	—
Work in process, December 31, 6,200 units, 10% completed	—

Problems Series A

OBJ. 1, 3

✔ 2. Materials July 31 balance, $5,600

PR 20-1A Entries for process cost system

Design Flooring Carpet Company manufactures carpets. Fiber is placed in process in the Spinning Department, where it is spun into yarn. The output of the Spinning Department is transferred to the Tufting Department, where carpet backing is added at the beginning of the process and the process is completed. On July 1, Design Flooring Carpet Company had the following inventories:

Finished Goods	$5,600
Work in Process—Spinning Department	900
Work in Process—Tufting Department	1,400
Materials	4,200

Departmental accounts are maintained for factory overhead, and both have zero balances on July 1.

Manufacturing operations for July are summarized as follows:

a. Materials purchased on account	$ 84,600
b. Materials requisitioned for use:	
Fiber—Spinning Department	$ 42,800
Carpet backing—Tufting Department	34,400
Indirect materials—Spinning Department	3,200
Indirect materials—Tufting Department	2,800
c. Labor used:	
Direct labor—Spinning Department	$ 24,200
Direct labor—Tufting Department	18,700
Indirect labor—Spinning Department	12,300
Indirect labor—Tufting Department	11,900
d. Depreciation charged on fixed assets:	
Spinning Department	$ 5,300
Tufting Department	3,100
e. Expired prepaid factory insurance:	
Spinning Department	$ 1,200
Tufting Department	900
f. Applied factory overhead:	
Spinning Department	$ 21,600
Tufting Department	19,500
g. Production costs transferred from Spinning Department to Tufting Department	$ 87,200
h. Production costs transferred from Tufting Department to Finished Goods	$159,200
i. Cost of goods sold during the period	$160,300

Instructions

1. Journalize the entries to record the operations, identifying each entry by letter.
2. Compute the July 31 balances of the inventory accounts.
3. Compute the July 31 balances of the factory overhead accounts.

OBJ. 2, 4

✔ 1. Conversion cost per equivalent unit, $1.20

PR 20-2A Cost of production report

Robusta Coffee Company roasts and packs coffee beans. The process begins by placing coffee beans into the Roasting Department. From the Roasting Department, coffee beans are then transferred to the Packing Department. The following is a partial work in process account of the Roasting Department at March 31, 2012:

ACCOUNT *Work in Process—Roasting Department* ACCOUNT NO.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
Mar.	1	Bal., 1,050 units, 30% completed			4,997	
	31	Direct materials, 16,200 units	72,900		77,897	
	31	Direct labor	10,800		88,697	
	31	Factory overhead	8,910		97,607	
	31	Goods transferred, 16,400 units		?		
	31	Bal., ? units, 40% completed			?	

Instructions

1. Prepare a cost of production report, and identify the missing amounts for Work in Process—Roasting Department.
2. Assuming that the March 1 work in process inventory includes $4,578 of direct materials, determine the increase or decrease in the cost per equivalent unit for direct materials and conversion between February and March.

OBJ. 2, 3, 4

✔ 2. Transferred to Packaging Dept., $42,569

PR 20-3A Equivalent units and related costs; cost of production report; entries

White Star Flour Company manufactures flour by a series of three processes, beginning with wheat grain being introduced in the Milling Department. From the Milling Department, the materials pass through the Sifting and Packaging departments, emerging as packaged refined flour.

The balance in the account Work in Process—Sifting Department was as follows on May 1, 2012:

Work in Process—Sifting Department (800 units, ⅗ completed):	
Direct materials (800 × $2.25)	$1,800
Conversion (800 × ⅗ × $0.65)	312
	$2,112

The following costs were charged to Work in Process—Sifting Department during May:

Direct materials transferred from Milling Department:	
14,200 units at $2.35 a unit	$33,370
Direct labor	6,100
Factory overhead	3,924

During May, 14,000 units of flour were completed. Work in Process—Sifting Department on May 31 was 1,000 units, ⅘ completed.

Instructions

1. Prepare a cost of production report for the Sifting Department for May.
2. Journalize the entries for costs transferred from Milling to Sifting and the costs transferred from Sifting to Packaging.
3. Determine the increase or decrease in the cost per equivalent unit from April to May for direct materials and conversion costs.
4. Discuss the uses of the cost of production report and the results of part (3).

OBJ. 1, 2, 3

✓ 1. c. Transferred to finished goods in February, $46,664

PR 20-4A Work in process account data for two months; cost of production reports

HomeStyle Soup Co. uses a process cost system to record the costs of processing soup, which requires the cooking and filling processes. Materials are entered from the cooking process at the beginning of the filling process. The inventory of Work in Process—filling on February 1 and debits to the account during February 2012 were as follows:

Bal., 400 units, 30% completed:	
Direct materials (400 × $3.70)	$ 1,480
Conversion (400 × 30% × $1.55)	186
	$ 1,666
From Cooking Department, 8,900 units	$33,820
Direct labor	9,450
Factory overhead	5,134

During February, 400 units in process on February 1 were completed, and of the 8,900 units entering the department, all were completed except 650 units that were 90% completed.

Charges to Work in Process—Filling for March were as follows:

From Cooking Department, 9,600 units	$38,400
Direct labor	10,890
Factory overhead	5,922

During March, the units in process at the beginning of the month were completed, and of the 9,600 units entering the department, all were completed except 500 units that were 35% completed.

Instructions

1. Enter the balance as of February 1, 2012, in a four-column account for Work in Process—Filling. Record the debits and the credits in the account for February. Construct a cost of production report, and present computations for determining (a) equivalent units of production for materials and conversion, (b) costs per equivalent unit, (c) cost of goods finished, differentiating between units started in the prior period and units started and finished in February, and (d) work in process inventory.
2. Provide the same information for March by recording the March transactions in the four-column work in process account. Construct a cost of production report, and present the March computations (a through d) listed in part (1).
3. Comment on the change in costs per equivalent unit for January through March for direct materials and conversion costs.

✓ Cost per equivalent unit, $2.60

Appendix
PR 20-5A Cost of production report: average cost method

AM Coffee Company roasts and packs coffee beans. The process begins in the Roasting Department. From the Roasting Department, the coffee beans are transferred to the Packing Department. The following is a partial work in process account of the Roasting Department at October 31, 2012:

ACCOUNT ***Work in Process—Roasting Department*** **ACCOUNT NO.**

Date		Item	Debit	Credit	Balance Debit	Balance Credit
Oct.	1	Bal., 12,400 units, 75% completed			24,000	
	31	Direct materials, 214,600 units	235,700		259,700	
	31	Direct labor	127,200		386,900	
	31	Factory overhead	181,850		568,750	
	31	Goods transferred, 216,000 units		?	?	
	31	Bal., ? units, 25% completed			?	

Instructions

Prepare a cost of production report, using the average cost method, and identify the missing amounts for Work in Process—Roasting Department.

Problems Series B

OBJ. 1, 3

✔ 2. Materials May 31 balance, $7,480

PR 20-1B Entries for process cost system

G&P Soap Company manufactures powdered detergent. Phosphate is placed in process in the Making Department, where it is turned into granulars. The output of Making is transferred to the Packing Department, where packaging is added at the beginning of the process. On May 1, G&P Soap Company had the following inventories:

Finished Goods	$11,200
Work in Process—Making	5,240
Work in Process—Packing	6,710
Materials	3,100

Departmental accounts are maintained for factory overhead, which both have zero balances on May 1.

Manufacturing operations for May are summarized as follows:

a. Materials purchased on account	$145,800
b. Materials requisitioned for use:	
Phosphate—Making Department	$103,250
Packaging—Packing Department	32,600
Indirect materials—Making Department	4,320
Indirect materials—Packing Department	1,250
c. Labor used:	
Direct labor—Making Department	$ 28,200
Direct labor—Packing Department	37,200
Indirect labor—Making Department	15,100
Indirect labor—Packing Department	16,700
d. Depreciation charged on fixed assets:	
Making Department	$ 9,500
Packing Department	6,300
e. Expired prepaid factory insurance:	
Making Department	$ 2,400
Packing Department	1,200
f. Applied factory overhead:	
Making Department	$ 32,420
Packing Department	24,150
g. Production costs transferred from Making Department to Packing Department	$164,320
h. Production costs transferred from Packing Department to Finished Goods	$257,900
i. Cost of goods sold during the period	$260,200

Instructions

1. Journalize the entries to record the operations, identifying each entry by letter.
2. Compute the May 31 balances of the inventory accounts.
3. Compute the May 31 balances of the factory overhead accounts.

OBJ. 2, 4

✔ 1. Conversion cost per equivalent unit, $1.00

PR 20-2B Cost of production report

Swiss Velvet Chocolate Company processes chocolate into candy bars. The process begins by placing direct materials (raw chocolate, milk, and sugar) into the Blending Department. All materials are placed into production at the beginning of the blending process. After blending, the milk chocolate is then transferred to the Molding Department, where the milk chocolate is formed into candy bars. The following is a partial work in process account of the Blending Department at August 31, 2012:

ACCOUNT *Work in Process—Blending Department* ACCOUNT NO.

Date		Item	Debit	Credit	Balance	
					Debit	Credit
Aug.	1	Bal., 1,900 units, ⅗ completed			7,657	
	31	Direct materials, 22,000 units	77,000		84,657	
	31	Direct labor	14,200		98,857	
	31	Factory overhead	6,880		105,737	
	31	Goods transferred, 21,800 units		?		
	31	Bal., ? units, ⅕ completed			?	

Instructions

1. Prepare a cost of production report, and identify the missing amounts for Work in Process—Blending Department.
2. Assuming that the August 1 work in process inventory includes direct materials of $6,460, determine the increase or decrease in the cost per equivalent unit for direct materials and conversion between July and August.

OBJ. 2, 3, 4

✓ 2. Transferred to finished goods, $757,125

PR 20-3B Equivalent units and related costs; cost of production report; entries

Meadowland Chemical Company manufactures specialty chemicals by a series of three processes, all materials being introduced in the Distilling Department. From the Distilling Department, the materials pass through the Reaction and Filling departments, emerging as finished chemicals.

The balance in the account Work in Process—Filling was as follows on December 1, 2012:

Work in Process—Filling Department (2,500 units, 60% completed):	
Direct materials (2,500 × $13.10)	$32,750
Conversion (2,500 × 60% × $5.65)	8,475
	$41,225

The following costs were charged to Work in Process—Filling during December:

Direct materials transferred from Reaction Department: 42,100 units at $13.00 a unit	$547,300
Direct labor	143,200
Factory overhead	79,605

During December, 40,900 units of specialty chemicals were completed. Work in Process—Filling Department on December 31 was 3,700 units, 30% completed.

Instructions

1. Prepare a cost of production report for the Filling Department for December.
2. Journalize the entries for costs transferred from Reaction to Filling and the cost transferred from Filling to Finished Goods.
3. Determine the increase or decrease in the cost per equivalent unit from November to December for direct materials and conversion costs.
4. Discuss the uses of the cost of production report and the results of part (3).

OBJ. 1, 2, 3, 4

✓ 1. c. Transferred to finished goods in June, $647,925

PR 20-4B Work in process account data for two months; cost of production reports

Natco Aluminum Company uses a process cost system to record the costs of manufacturing rolled aluminum, which consists of the smelting and rolling processes. Materials are

entered from smelting at the beginning of the rolling process. The inventory of Work in Process—Rolling on June 1, 2012, and debits to the account during June were as follows:

Bal., 3,300 units, ¼ completed:	
Direct materials (3,300 × $12.50)	$41,250
Conversion (3,300 × ¼ × $7.40)	6,105
	$47,355

From Smelting Department, 32,500 units	$409,500
Direct labor	142,400
Factory overhead	117,786

During June, 3,300 units in process on June 1 were completed, and of the 32,500 units entering the department, all were completed except 3,700 units that were ⅘ completed.

Charges to Work in Process—Rolling for July were as follows:

From Smelting Department, 33,000 units	$422,400
Direct labor	136,400
Factory overhead	111,600

During July, the units in process at the beginning of the month were completed, and of the 33,000 units entering the department, all were completed except 2,900 units that were ⅖ completed.

Instructions

1. Enter the balance as of June 1, 2012, in a four-column account for Work in Process—Rolling. Record the debits and the credits in the account for June. Construct a cost of production report and present computations for determining (a) equivalent units of production for materials and conversion, (b) costs per equivalent unit, (c) cost of goods finished, differentiating between units started in the prior period and units started and finished in June, and (d) work in process inventory.
2. Provide the same information for July by recording the July transactions in the four-column work in process account. Construct a cost of production report, and present the July computations (a through d) listed in part (1).
3. Comment on the change in costs per equivalent unit for May through July for direct materials and conversion cost.

✔ Transferred to Packaging Dept., $58,100

Appendix

PR 20-5B Equivalent units and related costs; cost of production report: average cost method

State Fair Flour Company manufactures flour by a series of three processes, beginning in the Milling Department. From the Milling Department, the materials pass through the Sifting and Packaging departments, emerging as packaged refined flour.

The balance in the account Work in Process—Sifting Department was as follows on March 1, 2012:

Work in Process—Sifting Department (1,000 units, 75% completed)	$2,600

The following costs were charged to Work in Process—Sifting Department during March:

Direct materials transferred from Milling Department: 16,800 units	$31,000
Direct labor	13,250
Factory overhead	14,400

During March, 16,600 units of flour were completed and transferred to finished goods. Work in Process—Sifting Department on March 31 was 1,200 units, 75% completed.

Instructions

Prepare a cost of production report for the Sifting Department for March, using the average cost method.

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA 20-1 Cost per equivalent unit

Brazil Aluminum, Inc., processes aluminum. The Smelting Department had the following equivalent units with respect to direct materials and conversion:

	Equivalent Units	
	Direct Materials	**Conversion**
Inventory in process, October 1	—	2400
Started and completed in October	95,000	95,000
Transferred out to Rolling	95,000	97,400
Inventory in process, October 31	6,000	1,200
Total equivalent units to be assigned costs (tons)	101,000	98,600

	Direct Materials	**Conversion**
Costs	$1,727,100	$423,980

a. Open the Excel file *SA20-1_2e.*

b. Develop a spreadsheet to determine the cost per equivalent unit for direct materials and for conversion.

c. When you have completed the spreadsheet, perform a "save as," replacing the entire file name with the following:

SA20-1_2e[your first name initial]_[your last name]

SA 20-2 Cost per equivalent unit

The Crumble Cookie Company makes cookies using two departments, Mixing and Baking. The Baking Department started and completed 56,000 units during August. The Baking Department had the following units of inventory on August 1 and August 31 of the current year.

Aug. 1 Work in Process—Baking	3,200 units	($\frac{3}{4}$ complete as to conversion costs)
Aug. 31 Work in Process—Baking	1,600 units	($\frac{1}{4}$ complete as to conversion costs)

Total costs incurred during the month in the Baking Department were as follows:

Direct materials	$1,238,400
Conversion	280,220

a. Open the Excel file *SA20-2_2e.*

b. Develop a spreadsheet to determine the cost per equivalent unit for direct materials and for conversion.

c. When you have completed the spreadsheet, perform a "save as," replacing the entire file name with the following:

SA20-2_2e[your first name initial]_[your last name]

SA 20-3 Cost of production report using a spreadsheet

Atlantic Beverages, Inc., produces soft drinks. The Mixing Department had the follow-ing information with respect to the Work in Process—Mixing Department for June of the current year:

	Units	Amount	Percent Complete
Work in Process, June 1	5,000	$ 41,000	60%
Direct materials received from Materials	36,000	198,000	
Direct labor		101,890	
Factory overhead		61,640	
Work in Process, June 30	3,500		30%

a. Open the Excel file *SA20-3_2e.*

b. Prepare a cost of production report using spreadsheet software for the Mixing Department for June.

c. When you have completed the spreadsheet, perform a "save as," replacing the entire file name with the following:

SA20-3_2e[your first name initial]_[your last name]

SA 20-4 Cost of production report using a spreadsheet

Alberta Paper Company produces paper. The Converting Department had the following information with respect to the Work in Process—Converting for April 1 of the current year:

Work in Process—Converting (1,200 units, ⅖ completed)	$35,800

The following costs were charged to Work in Process—Converting during April:

Direct materials transferred from Rolling, 21,400 units	$175,480
Direct labor	53,600
Factory overhead	71,920

During April, 21, 100 units of paper were completed in the Converting Department and transferred to finished goods. Inventories for April 30, were 1,500 whole units that were ⅕ completed as to conversion costs.

Prepare a cost of production report using spreadsheet software for the Converting Department for April.

a. Open the Excel file *SA20-4_2e.*

b. Prepare a cost of production report using spreadsheet software for the Converting Department for April.

c. When you have completed the spreadsheet, perform a "save as," replacing the entire file name with the following:

SA20-4_2e [your first name initial]_[your last name]

CHAPTER

21

to/Paul Sakuma

Cost Behavior and Cost-Volume-Profit Analysis

Netflix

How do you decide whether you are going to buy or rent a video game? It probably depends on how much you think you are going to use the game. If you are going to play the game a lot, you are probably better off buying the game than renting. The one-time cost of buying the game would be much less expensive than the cost of multiple rentals. If, on the other hand, you are uncertain about how frequently you are going to play the game, it may be less expensive to rent. The cost of an individual rental is much less than the cost of purchase. Understanding how the costs of rental and purchase behave affects your decision.

Understanding how costs behave is also important to companies like **Netflix**, an online movie rental service. For a fixed monthly fee, Netflix customers can watch movies and TV episodes online, or they can have DVDs delivered to their home along with a prepaid return envelope. Customers can keep the DVDs as long as they want, but must return the DVDs before they rent additional movies. The number of DVDs that members can check out at one time varies, depending on their subscription plan.

In order to entice customers to subscribe, Netflix had to invest in a well-stocked library of DVD titles and build a warehouse to hold and distribute these titles. These costs do not change with the number of subscriptions. But how many subscriptions does Netflix need in order to make a profit? That depends on the price of each subscription, the costs incurred with each DVD rental, and the costs associated with maintaining the DVD library.

As with Netflix, understanding how costs behave, and the relationship between costs, profits, and volume is important for all businesses. This chapter discusses commonly used methods for classifying costs according to how they change. Techniques that management can use to evaluate costs in order to make sound business decisions are also discussed.

Learning Objectives

After studying this chapter, you should be able to:

		Example Exercises	*Page*
OBJ. 1	Classify costs as variable costs, fixed costs, or mixed costs.		
	Cost Behavior		
	Variable Costs		
	Fixed Costs		
	Mixed Costs	EE 21-1	971
	Summary of Cost Behavior Concepts		
OBJ. 2	Compute the contribution margin, the contribution margin ratio, and the unit contribution margin.		
	Cost-Volume-Profit Relationships		
	Contribution Margin		
	Contribution Margin Ratio		
	Unit Contribution Margin	EE 21-2	975
OBJ. 3	Determine the break-even point and sales necessary to achieve a target profit.		
	Mathematical Approach to Cost-Volume-Profit Analysis		
	Break-Even Point	EE 21-3	979
	Target Profit	EE 21-4	980
OBJ. 4	Using a cost-volume-profit chart and a profit-volume chart, determine the break-even point and sales necessary to achieve a target profit.		
	Graphic Approach to Cost-Volume-Profit Analysis		
	Cost-Volume-Profit (Break-Even) Chart		
	Profit-Volume Chart		
	Use of Computers in Cost-Volume-Profit Analysis		
	Assumptions of Cost-Volume-Profit Analysis		
OBJ. 5	Compute the break-even point for a company selling more than one product, the operating leverage, and the margin of safety.		
	Special Cost-Volume-Profit Relationships		
	Sales Mix Considerations	EE 21-5	986
	Operating Leverage	EE 21-6	988
	Margin of Safety	EE 21-7	989

At a Glance 21 Page 992

OBJ. 1 Classify costs as variable costs, fixed costs, or mixed costs.

Cost Behavior

Cost behavior is the manner in which a cost changes as a related activity changes. The behavior of costs is useful to managers for a variety of reasons. For example, knowing how costs behave allows managers to predict profits as sales and production volumes change. Knowing how costs behave is also useful for estimating costs, which affects a variety of decisions such as whether to replace a machine.

Understanding the behavior of a cost depends on:

1. Identifying the activities that cause the cost to change. These activities are called **activity bases** (or *activity drivers*).
2. Specifying the range of activity over which the changes in the cost are of interest. This range of activity is called the **relevant range**.

To illustrate, assume that a hospital is concerned about planning and controlling patient food costs. A good activity base is the number of patients who *stay* overnight in the hospital. The number of patients who are *treated* is not as good an activity base since some patients are outpatients and, thus, do not consume food. Once an activity base is identified, food costs can then be analyzed over the range of the number of patients who normally stay in the hospital (the relevant range).

Costs are normally classified as variable costs, fixed costs, or mixed costs.

Variable Costs

Variable costs are costs that vary in proportion to changes in the activity base. When the activity base is units produced, direct materials and direct labor costs are normally classified as variable costs.

To illustrate, assume that Jason Sound Inc. produces stereo systems. The parts for the stereo systems are purchased from suppliers for $10 per unit and are assembled by Jason Sound Inc. For Model JS-12, the direct materials costs for the relevant range of 5,000 to 30,000 units of production are shown below.

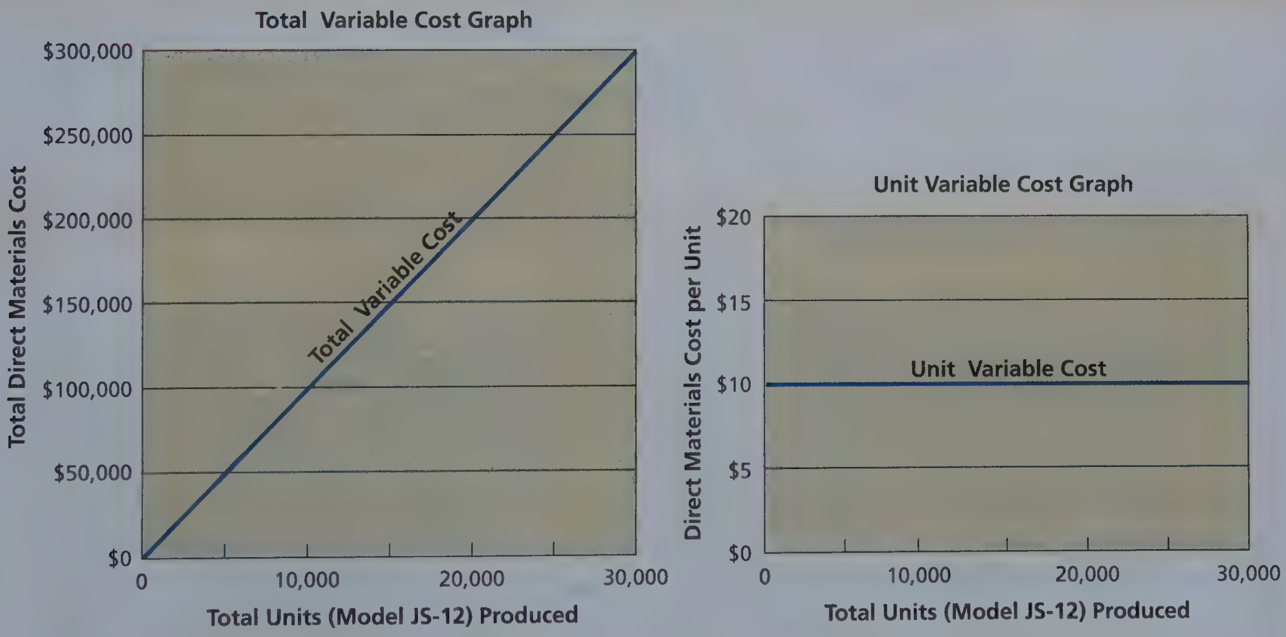
Number of Units of Model JS-12 Produced	Direct Materials Cost per Unit	Total Direct Materials Cost
5,000 units	$10	$ 50,000
10,000	10	100,000
15,000	10	150,000
20,000	10	200,000
25,000	10	250,000
30,000	10	300,000

As shown above, variable costs have the following characteristics:

1. *Cost per unit* remains the same regardless of changes in the activity base. For Model JS-12, the cost per unit is $10.
2. *Total cost* changes in proportion to changes in the activity base. For Model JS-12, the direct materials cost for 10,000 units ($100,000) is twice the direct materials cost for 5,000 units ($50,000).

Exhibit 1 illustrates how the variable costs for direct materials for Model JS-12 behave in total and on a per-unit basis as production changes.

EXHIBIT 1 **Variable Cost Graphs**



Some examples of variable costs and their related activity bases for various types of businesses are shown below.

Type of Business	Cost	Activity Base
University	Instructor salaries	Number of classes
Passenger airline	Fuel	Number of miles flown
Manufacturing	Direct materials	Number of units produced
Hospital	Nurse wages	Number of patients
Hotel	Maid wages	Number of guests
Bank	Teller wages	Number of banking transactions

Fixed Costs

Fixed costs are costs that remain the same in total dollar amount as the activity base changes. When the activity base is units produced, many factory overhead costs such as straight-line depreciation are classified as fixed costs.

To illustrate, assume that Minton Inc. manufactures, bottles, and distributes perfume. The production supervisor is Jane Sovissi, who is paid a salary of $75,000 per year. For the relevant range of 50,000 to 300,000 bottles of perfume, the total fixed cost of $75,000 does not vary as production increases. However, the fixed cost per bottle decreases as the units produced increase; thus, the fixed cost is spread over a larger number of bottles, as shown below.

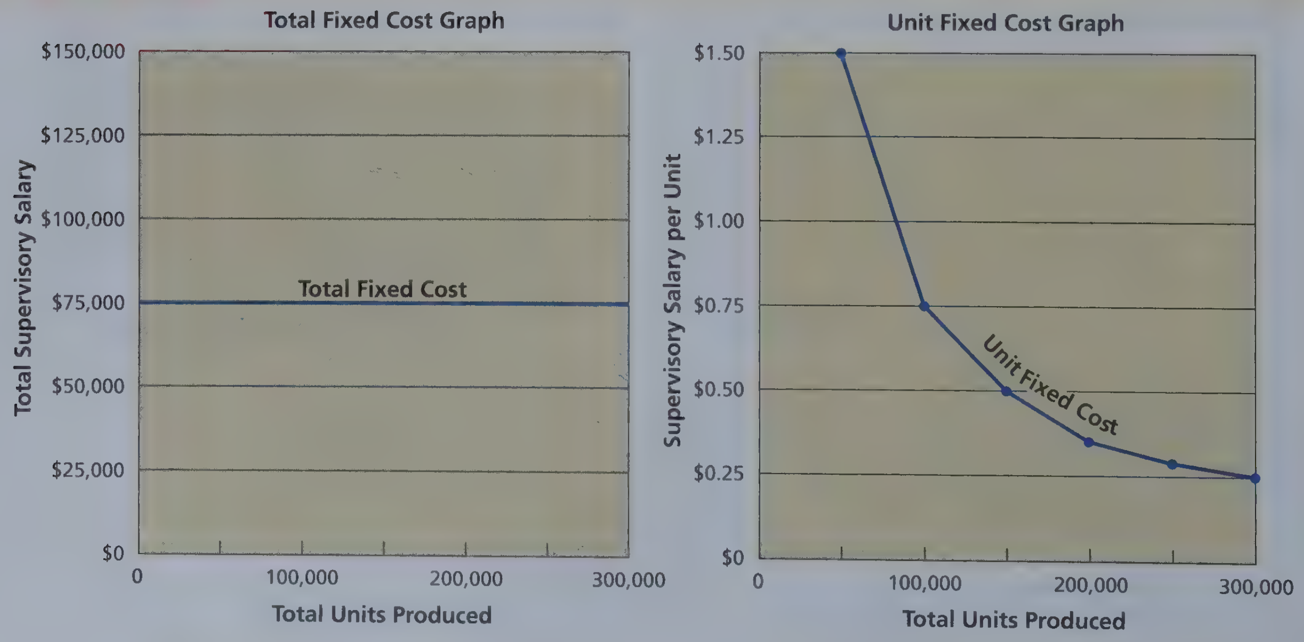
Number of Bottles of Perfume Produced	Total Salary for Jane Sovissi	Salary per Bottle of Perfume Produced
50,000 bottles	$75,000	$1.500
100,000	75,000	0.750
150,000	75,000	0.500
200,000	75,000	0.375
250,000	75,000	0.300
300,000	75,000	0.250

As shown above, fixed costs have the following characteristics:

1. *Cost per unit* changes inversely to changes in the activity base. For Jane Sovissi's salary, the cost per unit decreased from $1.50 for 50,000 bottles produced to $0.25 for 300,000 bottles produced.
2. *Total cost* remains the same regardless of changes in the activity base. Jane Sovissi's salary of $75,000 remained the same regardless of whether 50,000 bottles or 300,000 bottles were produced.

Exhibit 2 illustrates how Jane Sovissi's salary (fixed cost) behaves in total and on a per-unit basis as production changes.

EXHIBIT 2 Fixed Cost Graphs



Some examples of fixed costs and their related activity bases for various types of businesses are shown below.

Type of Business	Fixed Cost	Activity Base
University	Building (straight-line) depreciation	Number of students
Passenger airline	Airplane (straight-line) depreciation	Number of miles flown
Manufacturing	Plant manager salary	Number of units produced
Hospital	Property insurance	Number of patients
Hotel	Property taxes	Number of guests
Bank	Branch manager salary	Number of customer accounts

Mixed Costs

Mixed costs are costs that have characteristics of both a variable and a fixed cost. Mixed costs are sometimes called *semivariable* or *semifixed* costs.

To illustrate, assume that Simpson Inc. manufactures sails, using rented machinery. The rental charges are as follows:

Rental Charge = $15,000 per year + $1 times each machine hour over 10,000 hours

The rental charges for various hours used within the relevant range of 8,000 hours to 40,000 hours are as follows:

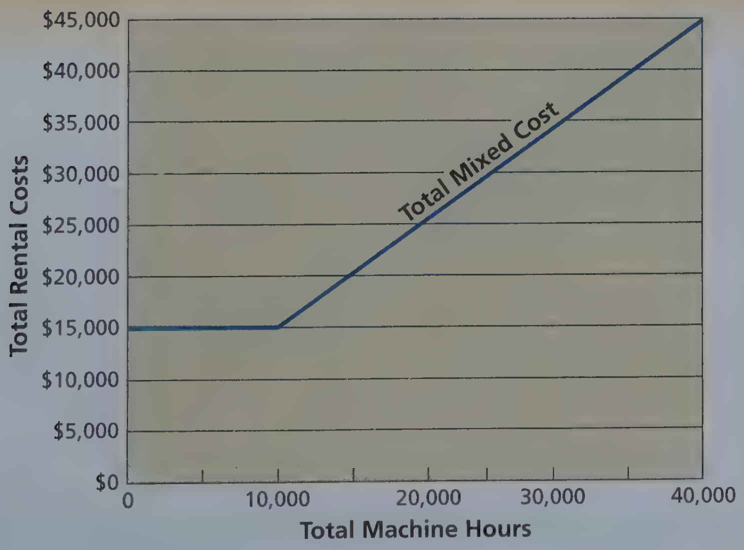
Hours Used	Rental Charge
8,000 hours	$15,000
12,000	$17,000 {$15,000 + [(12,000 hrs. – 10,000 hrs.) × $1]}
20,000	$25,000 {$15,000 + [(20,000 hrs. – 10,000 hrs.) × $1]}
40,000	$45,000 {$15,000 + [(40,000 hrs. – 10,000 hrs.) × $1]}

A salesperson's compensation can be a mixed cost comprised of a salary (fixed portion) plus a commission as a percent of sales (variable portion).

Exhibit 3 illustrates the preceding mixed cost behavior.

EXHIBIT 3

Mixed Costs



For purposes of analysis, mixed costs are usually separated into their fixed and variable components. The **high-low method** is a cost estimation method that may be used for this purpose.[1] The high-low method uses the highest and lowest activity levels and their related costs to estimate the variable cost per unit and the fixed cost.

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[1] Other methods of estimating costs, such as the scattergraph method and the least squares method, are discussed in cost accounting textbooks.

To illustrate, assume that the Equipment Maintenance Department of Kason Inc. incurred the following costs during the past five months:

	Production	Total Cost
June	1,000 units	$45,550
July	1,500	52,000
August	2,100	61,500
September	1,800	57,500
October	750	41,250

The number of units produced is the activity base, and the relevant range is the units produced between June and October. For Kason Inc., the difference between the units produced and total costs at the highest and lowest levels of production are as follows:

	Production	Total Cost
Highest level	2,100 units	$61,500
Lowest level	750	41,250
Difference	1,350 units	$20,250

The total fixed cost does not change with changes in production. Thus, the $20,250 difference in the total cost is the change in the total variable cost. Dividing this difference of $20,250 by the difference in production is an estimate of the variable cost per unit. For Kason Inc., this estimate is $15, as computed below.

$$\text{Variable Cost per Unit} = \frac{\text{Difference in Total Cost}}{\text{Difference in Production}}$$

$$\text{Variable Cost per Unit} = \frac{\$20{,}250}{1{,}350\text{ units}} = \$15\text{ per unit}$$

The fixed cost is estimated by subtracting the total variable costs from the total costs for the units produced as shown below.

Fixed Cost = Total Costs – (Variable Cost per Unit × Units Produced)

The fixed cost is the same at the highest and the lowest levels of production as shown below for Kason Inc.

Highest level (2,100 units)

Fixed Cost = Total Costs – (Variable Cost per Unit × Units Produced)
Fixed Cost = $61,500 – ($15 × 2,100 units)
Fixed Cost = $61,500 – $31,500
Fixed Cost = $30,000

Lowest level (750 units)

Fixed Cost = Total Costs – (Variable Cost per Unit × Units Produced)
Fixed Cost = $41,250 – ($15 × 750 units)
Fixed Cost = $41,250 – $11,250
Fixed Cost = $30,000

Using the variable cost per unit and the fixed cost, the total equipment maintenance cost for Kason Inc. can be computed for various levels of production as follows:

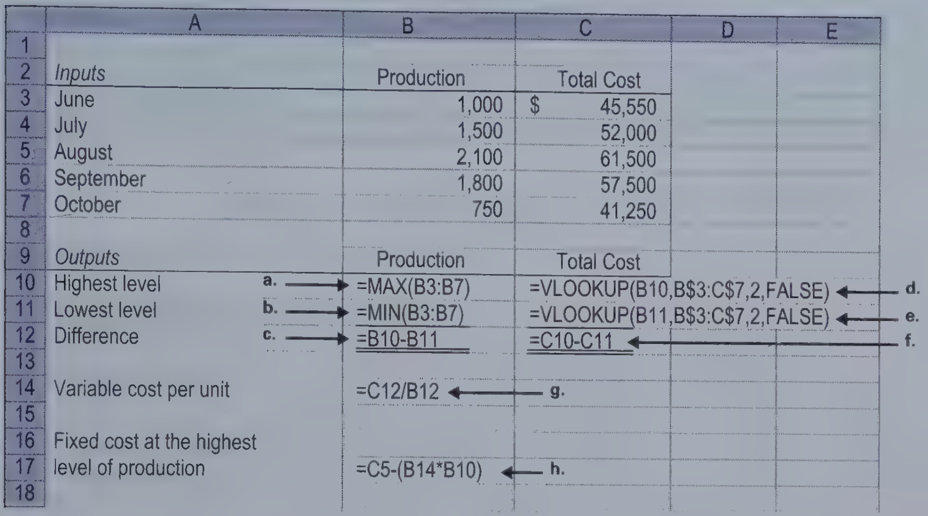
Total Cost = (Variable Cost per Unit × Units Produced) + Fixed Costs
Total Cost = ($15 × Units Produced) + $30,000

To illustrate, the estimated total cost of 2,000 units of production is $60,000, as computed below.

Total Cost = ($15 × Units Produced) + $30,000
Total Cost = ($15 × 2,000 units) + $30,000 = $30,000 + $30,000
Total Cost = $60,000

excel success

A spreadsheet can be used to determine the variable cost per unit and total fixed cost under the high-low method as follows:



	A	B	C	D	E
1					
2	*Inputs*	Production	Total Cost		
3	June	1,000	$ 45,550		
4	July	1,500	52,000		
5	August	2,100	61,500		
6	September	1,800	57,500		
7	October	750	41,250		
8					
9	*Outputs*	Production	Total Cost		
10	Highest level	=MAX(B3:B7)	=VLOOKUP(B10,B$3:C$7,2,FALSE)		
11	Lowest level	=MIN(B3:B7)	=VLOOKUP(B11,B$3:C$7,2,FALSE)		
12	Difference	=B10-B11	=C10-C11		
13					
14	Variable cost per unit	=C12/B12			
15					
16	Fixed cost at the highest				
17	level of production	=C5-(B14*B10)			
18					

a. Enter in cell B10 the maximum production by using the =MAX function, =MAX(B3:B7). This function will return the maximum value in the stated range.

b. Enter in cell B11 the minimum production by using the =MIN function, =MIN(B3:B7). This function will return the minimum value in the stated range.

c. Enter in cell B12 the formula for the difference between the maximum and minimum, =B10-B11.

d. The total cost that is associated with the maximum value from the table must be inserted in C10. While you could do this by eye, there is a useful Excel function that can be used to find the matching cost. The VLOOKUP function finds a value in the first column and returns the value in the same row from the second column. For example, enter in C10 the following formula:

   =VLOOKUP(B10,B$3:C$7,2,FALSE), where

   B10 is the value that is to be found in the first column of the production and total cost table. In this case, the maximum value is 2,100.

   B$3:C$7 is the table that contains the production and cost information. The dollar sign makes the rows absolute so that we can copy this formula when it is completed.

   "2" indicates the column number of the table from which the matching value is to be returned. We enter 2 for the second column, or Total Cost column. Thus, we want the function to return the number 61,500, which is the number in the second column that matches the maximum number from the first column, or 2,100.

   "False" tells Excel to find an exact match.

e. Copy the VLOOKUP function from cell C10 to C11.

f. Enter in cell C12 the difference, or copy from B12.

g. Enter in B14 the formula for the variable cost per unit, =C12/B12.

h. Enter in B16 the formula for the total fixed cost, =C5-(B14*B10) using the maximum level total cost and matching production level. The formula could also use the minimum cost and matching production level to yield the same result.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Example Exercise 21-1 High-Low Method

OBJ. 2

The manufacturing costs of Alex Industries for the first three months of the year are provided below.

	Total Cost	Production
January	$ 80,000	1,000 units
February	125,000	2,500
March	100,000	1,800

Using the high-low method, determine (a) the variable cost per unit and (b) the total fixed cost.

(continued)

Follow My Example 21-1

a. $30 per unit = ($125,000 – $80,000)/(2,500 – 1,000)
b. $50,000 = $125,000 – ($30 × 2,500), or $80,000 – ($30 × 1,000)

Practice Exercises: **PE 21-1A, PE 21-1B**

Summary of Cost Behavior Concepts

The cost behavior of variable costs and fixed costs is summarized below.

	Effect of Changing Activity Level	
Cost	**Total Amount**	**Per-Unit Amount**
Variable	Increases and decreases proportionately with activity level.	Remains the same regardless of activity level.
Fixed	Remains the same regardless of activity level.	Increases and decreases inversely with activity level.

Mixed costs contain a fixed cost component that is incurred even if nothing is produced. For analysis, the fixed and variable cost components of mixed costs are separated using the high-low method.

Some examples of variable, fixed, and mixed costs for the activity base *units produced* are as follows:

Variable Cost	Fixed Cost	Mixed Cost
Direct materials	Straight-line depreciation	Quality Control Department salaries
Direct labor	Property taxes	Purchasing Department salaries
Electricity expense	Production supervisor salaries	Maintenance expenses
Supplies	Insurance expense	Warehouse expenses

One method of reporting variable and fixed costs is called **variable costing** or *direct costing*. Under variable costing, only the variable manufacturing costs (direct materials, direct labor, and variable factory overhead) are included in the product cost. The fixed factory overhead is treated as an expense of the period in which it is incurred. Variable costing is described and illustrated in the appendix to this chapter.

Business Connection

FRANCHISING

Many restaurant chains such as McDonalds, Wendy's, Dunkin' Donuts, and Fatburger operate as franchises. In a franchise, the restaurant chain (called the franchisor) sells the right to sell products using its trademark or brand name to a franchisee. The franchisee typically pays an initial franchise fee, which is a fixed cost. In addition, the franchisee must normally make royalty payments to the franchisor based on a percentage of sales revenues, which is a variable cost. Prior to signing a franchise agreement, most franchisees conduct a break-even analysis to determine how much sales volume their franchise must generate to earn a profit. For example, McDonald's franchises require an initial investment of over $500,000 and typically take several years to break even.

Source: B. Beshel, *An Introduction to Franchising*, IFA Educational Foundation, 2000.

Cost-Volume-Profit Relationships

Obj. 2 Compute the contribution margin, the contribution margin ratio, and the unit contribution margin.

Cost-volume-profit analysis is the examination of the relationships among selling prices, sales and production volume, costs, expenses, and profits. Cost-volume-profit

analysis is useful for managerial decision making. Some of the ways cost-volume-profit analysis may be used include:

1. Analyzing the effects of changes in selling prices on profits
2. Analyzing the effects of changes in costs on profits
3. Analyzing the effects of changes in volume on profits
4. Setting selling prices
5. Selecting the mix of products to sell
6. Choosing among marketing strategies

Contribution Margin

Contribution margin is especially useful because it provides insight into the profit potential of a company. **Contribution margin** is the excess of sales over variable costs, as shown below.

$$\text{Contribution Margin} = \text{Sales} - \text{Variable Costs}$$

To illustrate, assume the following data for Lambert Inc.:

Sales	50,000 units
Sales price per unit	$20 per unit
Variable cost per unit	$12 per unit
Fixed costs	$300,000

Exhibit 4 illustrates an income statement for Lambert Inc. prepared in a contribution margin format.

EXHIBIT 4

Contribution Margin Income Statement

Sales (50,000 units × $20)	$1,000,000
Variable costs (50,000 units × $12)	600,000
Contribution margin (50,000 units × $8)	$ 400,000
Fixed costs	300,000
Income from operations	$ 100,000

Lambert's contribution margin of $400,000 is available to cover the fixed costs of $300,000. Once the fixed costs are covered, any additional contribution margin increases income from operations.

Contribution Margin Ratio

The contribution margin can also be expressed as a percentage. The **contribution margin ratio**, sometimes called the *profit-volume ratio*, indicates the percentage of each sales dollar available to cover fixed costs and to provide income from operations. The contribution margin ratio is computed as follows:

$$\text{Contribution Margin Ratio} = \frac{\text{Contribution Margin}}{\text{Sales}}$$

The contribution margin ratio is 40% for Lambert Inc., computed as follows:

$$\text{Contribution Margin Ratio} = \frac{\text{Contribution Margin}}{\text{Sales}}$$

$$\text{Contribution Margin Ratio} = \frac{\$400{,}000}{\$1{,}000{,}000} = 40\%$$

The contribution margin ratio is most useful when the increase or decrease in sales volume is measured in sales *dollars*. In this case, the change in sales dollars multiplied by the contribution margin ratio equals the change in income from operations, as shown below.

Change in Income from Operations = Change in Sales Dollars × Contribution Margin Ratio

To illustrate, if Lambert Inc. adds $80,000 in sales from the sale of an additional 4,000 units, its income from operations will increase by $32,000, as computed below.

Change in Income from Operations = Change in Sales Dollars × Contribution Margin Ratio
Change in Income from Operations = $80,000 × 40% = $32,000

The preceding analysis is confirmed by the following contribution margin income statement of Lambert Inc.:

Sales	$1,080,000
Variable costs ($1,080,000 × 60%)	648,000*
Contribution margin ($1,080,000 × 40%)	$ 432,000
Fixed costs	300,000
Income from operations	$ 132,000

*54,000 × $12 per unit.

Income from operations increased from $100,000 to $132,000 when sales increased from $1,000,000 to $1,080,000. Variable costs as a percentage of sales are equal to 100% minus the contribution margin ratio. Thus, in the above income statement, the variable costs are 60% (100% – 40%) of sales, or $648,000 ($1,080,000 × 60%). The total contribution margin, $432,000, can also be computed directly by multiplying the total sales by the contribution margin ratio ($1,080,000 × 40%).

In the preceding analysis, factors other than sales volume, such as variable cost per unit and sales price, are assumed to remain constant. If such factors change, their effect must also be considered.

The contribution margin ratio is also useful in developing business strategies. For example, assume that a company has a high contribution margin ratio and is producing below 100% of capacity. In this case, a large increase in income from operations can be expected from an increase in sales volume. Therefore, the company might consider implementing a special sales campaign to increase sales. In contrast, a company with a small contribution margin ratio will probably want to give more attention to reducing costs before attempting to promote sales.

Unit Contribution Margin

The unit contribution margin is also useful for analyzing the profit potential of proposed decisions. The **unit contribution margin** is computed as follows:

Unit Contribution Margin = Sales Price per Unit – Variable Cost per Unit

To illustrate, if Lambert Inc.'s unit selling price is $20 and its variable cost per unit is $12, the unit contribution margin is $8 as shown below.

Unit Contribution Margin = Sales Price per Unit – Variable Cost per Unit
Unit Contribution Margin = $20 – $12 = $8

The unit contribution margin is most useful when the increase or decrease in sales volume is measured in sales *units* (quantities). In this case, the change in sales volume (units) multiplied by the unit contribution margin equals the change in income from operations, as shown below.

Change in Income from Operations = Change in Sales Units × Unit Contribution Margin

To illustrate, assume that Lambert Inc.'s sales could be increased by 15,000 units, from 50,000 units to 65,000 units. Lambert's income from operations would increase by $120,000 (15,000 units × $8), as shown below.

Change in Income from Operations = Change in Sales Units × Unit Contribution Margin
Change in Income from Operations = 15,000 units × $8 = $120,000

The preceding analysis is confirmed by the following contribution margin income statement of Lambert Inc., which shows that income increased to $220,000 when 65,000 units are sold. The prior income statement on page 973 indicates income of $100,000 when 50,000 units are sold. Thus, selling an additional 15,000 units increases income by $120,000 ($220,000 – $100,000).

Sales (65,000 units × $20)	$1,300,000
Variable costs (65,000,units × $12)	780,000
Contribution margin (65,000 units × $8)	$ 520,000
Fixed costs	300,000
Income from operations	$ 220,000

A room night at Hilton Hotels has a high contribution margin. The high contribution margin per room night is necessary to cover the high fixed costs for the hotel.

Unit contribution margin analysis is useful information for managers. For example, in the preceding illustration, Lambert Inc. could spend up to $120,000 for special advertising or other product promotions to increase sales by 15,000 units and still increase income by $100,000 ($220,000 – $120,000).

Example Exercise 21-2 Contribution Margin

OBJ. 2

Molly Company sells 20,000 units at $12 per unit. Variable costs are $9 per unit, and fixed costs are $25,000. Determine the (a) contribution margin ratio, (b) unit contribution margin, and (c) income from operations.

Follow My Example 21-2

a. 25% = ($12 – $9)/$12, or ($240,000 – $180,000)/$240,000
b. $3 per unit = $12 – $9
c.

Sales	$240,000	(20,000 units × $12 per unit)
Variable costs	180,000	(20,000 units × $9 per unit)
Contribution margin	$ 60,000	[20,000 units × ($12 – $9)]
Fixed costs	25,000	
Income from operations	$ 35,000	

Practice Exercises: **PE 21-2A, PE 21-2B**

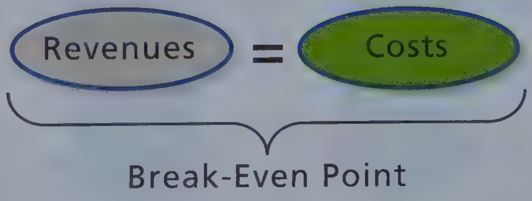
Mathematical Approach to Cost-Volume-Profit Analysis

OBJ. 3 Determine the break-even point and sales necessary to achieve a target profit.

The mathematical approach to cost-volume-profit analysis uses equations to determine the following:

1. Sales necessary to break even
2. Sales necessary to make a target or desired profit

Break-Even Point



The **break-even point** is the level of operations at which a company's revenues and expenses are equal. At break-even, a company reports neither an income nor a loss from operations. The break-even point in *sales units* is computed as follows:

$$\text{Break-Even Sales (units)} = \frac{\text{Fixed Costs}}{\text{Unit Contribution Margin}}$$

To illustrate, assume the following data for Baker Corporation:

Fixed costs	$90,000
Unit selling price	$25
Unit variable cost	15
Unit contribution margin	$10

The break-even point is 9,000 units, as shown below.

$$\text{Break-Even Sales (units)} = \frac{\text{Fixed Costs}}{\text{Unit Contribution Margin}} = \frac{\$90{,}000}{\$10} = 9{,}000 \text{ units}$$

The following income statement verifies the break-even point of 9,000 units:

Sales (9,000 units × $25)	$225,000
Variable costs (9,000 units × $15)	135,000
Contribution margin	$ 90,000
Fixed costs	90,000
Income from operations	$ 0

As shown in the preceding income statement, the break-even point is $225,000 (9,000 units × $25) of sales. The break-even point in *sales dollars* can be determined directly as follows:

$$\text{Break-Even Sales (dollars)} = \frac{\text{Fixed Costs}}{\text{Contribution Margin Ratio}}$$

The contribution margin ratio can be computed using the unit contribution margin and unit selling price as follows:

$$\text{Contribution Margin Ratio} = \frac{\text{Unit Contribution Margin}}{\text{Unit Selling Price}}$$

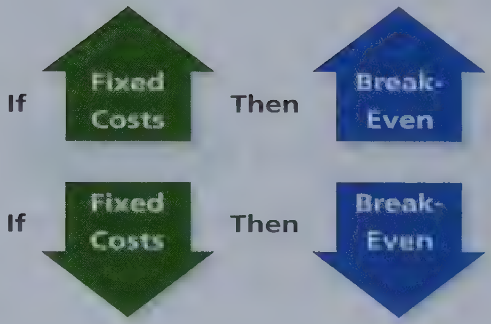
The contribution margin ratio for Baker Corporation is 40%, as shown below.

$$\text{Contribution Margin Ratio} = \frac{\text{Unit Contribution Margin}}{\text{Unit Selling Price}} = \frac{\$10}{\$25} = 40\%$$

Thus, the break-even sales dollars for Baker Corporation of $225,000 can be computed directly as follows:

$$\text{Break-Even Sales (dollars)} = \frac{\text{Fixed Costs}}{\text{Contribution Margin Ratio}} = \frac{\$90{,}000}{40\%} = \$225{,}000$$

The break-even point is affected by changes in the fixed costs, unit variable costs, and the unit selling price.



Effect of Changes in Fixed Costs Fixed costs do not change in total with changes in the level of activity. However, fixed costs may change because of other factors such as changes in property tax rates or factory supervisors' salaries.

Changes in fixed costs affect the break-even point as follows:

1. Increases in fixed costs increase the break-even point.
2. Decreases in fixed costs decrease the break-even point.

To illustrate, assume that Bishop Co. is evaluating a proposal to budget an additional $100,000 for advertising. The data for Bishop Co. are as follows:

	Current	Proposed
Unit selling price	$90	$90
Unit variable cost	70	70
Unit contribution margin	$20	$20
Fixed costs	$600,000	$700,000

Bishop Co.'s break-even point *before* the additional advertising expense of $100,000 is 30,000 units, as shown below.

$$\text{Break-Even Sales (units)} = \frac{\text{Fixed Costs}}{\text{Unit Contribution Margin}} = \frac{\$600{,}000}{\$20} = 30{,}000 \text{ units}$$

Bishop Co.'s break-even point *after* the additional advertising expense of $100,000 is 35,000 units, as shown below.

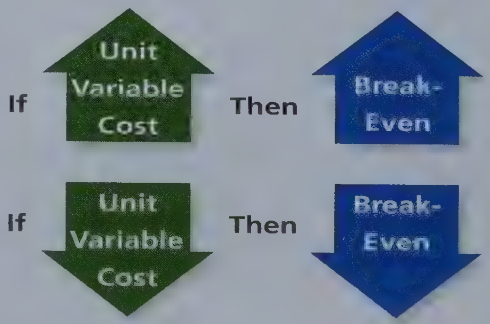
$$\text{Break-Even Sales (units)} = \frac{\text{Fixed Costs}}{\text{Unit Contribution Margin}} = \frac{\$700{,}000}{\$20} = 35{,}000 \text{ units}$$

As shown above, the $100,000 increase in advertising (fixed costs) requires an additional 5,000 units (35,000 – 30,000) of sales to break even.[2] In other words, an increase in sales of 5,000 units is required in order to generate an additional $100,000 of total contribution margin (5,000 units × $20) to cover the increased fixed costs.

Effect of Changes in Unit Variable Costs Unit variable costs do not change with changes in the level of activity. However, unit variable costs may be affected by other factors such as changes in the cost per unit of direct materials.

Changes in unit variable costs affect the break-even point as follows:

1. Increases in unit variable costs increase the break-even point.
2. Decreases in unit variable costs decrease the break-even point.



To illustrate, assume that Park Co. is evaluating a proposal to pay an additional 2% commission on sales to its salespeople as an incentive to increase sales. The data for Park Co. are as follows:

	Current	Proposed
Unit selling price	$250	$250
Unit variable cost	145	150
Unit contribution margin	$105	$100
Fixed costs	$840,000	$840,000

Park Co.'s break-even point *before* the additional 2% commission is 8,000 units, as shown below.

$$\text{Break-Even Sales (units)} = \frac{\text{Fixed Costs}}{\text{Unit Contribution Margin}} = \frac{\$840{,}000}{\$105} = 8{,}000 \text{ units}$$

If the 2% sales commission proposal is adopted, unit variable costs will increase by $5 ($250 × 2%) from $145 to $150 per unit. This increase in unit variable costs will decrease the unit contribution margin from $105 to $100 ($250 – $150). Thus, Park Co.'s break-even point *after* the additional 2% commission is 8,400 units, as shown on the next page.

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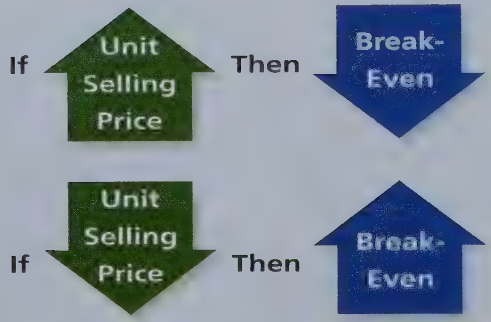
[2] The increase of 5,000 units can also be computed by dividing the increase in fixed costs of $100,000 by the unit contribution margin, $20, as follows: 5,000 units = $100,000/$20.

$$\text{Break-Even Sales (units)} = \frac{\text{Fixed Costs}}{\text{Unit Contribution Margin}} = \frac{\$840{,}000}{\$100} = 8{,}400 \text{ units}$$

As shown above, an additional 400 units of sales will be required in order to break even. This is because if 8,000 units are sold, the new unit contribution margin of $100 provides only $800,000 (8,000 units × $100) of contribution margin. Thus, $40,000 more contribution margin is necessary to cover the total fixed costs of $840,000. This additional $40,000 of contribution margin is provided by selling 400 more units (400 units × $100).



Effect of Changes in Unit Selling Price Changes in the unit selling price affect the unit contribution margin and, thus, the break-even point. Specifically, changes in the unit selling price affect the break-even point as follows:

1. Increases in the unit selling price decrease the break-even point.
2. Decreases in the unit selling price increase the break-even point.

To illustrate, assume that Graham Co. is evaluating a proposal to increase the unit selling price of its product from $50 to $60. The data for Graham Co. are as follows:

	Current	Proposed
Unit selling price	$50	$60
Unit variable cost	30	30
Unit contribution margin	$20	$30
Fixed costs	$600,000	$600,000

Graham Co.'s break-even point *before* the price increase is 30,000 units, as shown below.

$$\text{Break-Even Sales (units)} = \frac{\text{Fixed Costs}}{\text{Unit Contribution Margin}} = \frac{\$600{,}000}{\$20} = 30{,}000 \text{ units}$$

The increase of $10 per unit in the selling price increases the unit contribution margin by $10. Thus, Graham Co.'s break-even point *after* the price increase is 20,000 units, as shown below.

$$\text{Break-Even Sales (units)} = \frac{\text{Fixed Costs}}{\text{Unit Contribution Margin}} = \frac{\$600{,}000}{\$30} = 20{,}000 \text{ units}$$

As shown above, the price increase of $10 increased the unit contribution margin by $10, which decreased the break-even point by 10,000 units (30,000 units – 20,000 units).

Summary of Effects of Changes on Break-Even Point The break-even point in sales changes in the same direction as changes in the variable cost per unit and fixed costs. In contrast, the break-even point in sales changes in the opposite direction as changes in the unit selling price. These changes on the break-even point in sales are summarized below.

Type of Change	Direction of Change	Effect of Change on Break-Even Sales
Fixed cost	Increase	Increase
	Decrease	Decrease
Unit variable cost	Increase	Increase
	Decrease	Decrease
Unit selling price	Increase	Decrease
	Decrease	Increase

Example Exercise 21-3 Break-Even Point

OBJ 3

Nicolas Enterprises sells a product for $60 per unit. The variable cost is $35 per unit, while fixed costs are $80,000. Determine the (a) break-even point in sales units and (b) break-even point if the selling price were increased to $67 per unit.

Follow My Example 21-3

a. 3,200 units = $80,000/($60 – $35)
b. 2,500 units = $80,000/($67 – $35)

Practice Exercises: **PE 21-3A, PE 21-3B**

Business Connection

BREAKING EVEN IN THE AIRLINE INDUSTRY

Airlines have high fixed costs and operate in a very competitive industry. As a result, many airlines struggle to break even. For example, of the five airlines shown below, only Delta is operating at a profit. As the below table shows, the increase in airfare needed to break even ranges from less than 1% to 17%. This indicates that a small increase in ticket prices could enable an airline to break even. However, the competitive nature of the airline industry makes increasing airfares difficult to implement and maintain.

	United	Continental	Delta	American	US Air
Average one-way airfare per passenger*	$255	$251	$212	$206	$156
Average cost per passenger*	$292	$252	$192	$216	$182
Percentage increase in airfare needed to break even	15%	Less than 1%	N/A	5%	17%

*Source: R. Herbst, "What Will It Take for Airlines to Break Even on Airfares?" Airline Industry Commentary at AirlineFinancials.com, November 5, 2008.

Target Profit

At the break-even point, sales and costs are exactly equal. However, the goal of most companies is to make a profit.

By modifying the break-even equation, the sales required to earn a target or desired amount of profit may be computed. For this purpose, target profit is added to the break-even equation as shown below.

$$\text{Sales (units)} = \frac{\text{Fixed Costs} + \text{Target Profit}}{\text{Unit Contribution Margin}}$$

To illustrate, assume the following data for Waltham Co.:

Fixed costs	$200,000
Target profit	100,000
Unit selling price	$75
Unit variable cost	45
Unit contribution margin	$30

The sales necessary to earn the target profit of $100,000 would be 10,000 units, computed as follows:

$$\text{Sales (units)} = \frac{\text{Fixed Costs} + \text{Target Profit}}{\text{Unit Contribution Margin}} = \frac{\$200{,}000 + \$100{,}000}{\$30} = 10{,}000 \text{ units}$$

The following income statement verifies this computation:

	Sales (10,000 units × $75)	$750,000
	Variable costs (10,000 units × $45)	450,000
	Contribution margin (10,000 units × $30	$300,000
	Fixed costs	200,000
Target profit →	Income from operations	$100,000

As shown in the preceding income statement, sales of $750,000 (10,000 units × $75) are necessary to earn the target profit of $100,000. The sales of $750,000 needed to earn the target profit of $100,000 can be computed directly using the contribution margin ratio, as shown below.

$$\text{Contribution Margin Ratio} = \frac{\text{Unit Contribution Margin}}{\text{Unit Selling Price}} = \frac{\$30}{\$75} = 40\%$$

$$\text{Sales (dollars)} = \frac{\text{Fixed Costs} + \text{Target Profit}}{\text{Contribution Margin Ratio}}$$

$$= \frac{\$200{,}000 + \$100{,}000}{40\%} = \frac{\$300{,}000}{40\%} = \$750{,}000$$

Example Exercise 21-4 Target Profit

OBJ. 3

Forest Company sells a product for $140 per unit. The variable cost is $60 per unit, and fixed costs are $240,000. Determine the (a) break-even point in sales units and (b) the sales units required to achieve a target profit of $50,000.

Follow My Example 21-4

a. 3,000 units = $240,000/($140 – $60)
b. 3,625 units = ($240,000 + $50,000)/($140 – $60)

Practice Exercises: **PE 21-4A, PE 21-4B**

Integrity, Objectivity, and Ethics in Business

ORPHAN DRUGS

Each year, pharmaceutical companies develop new drugs that cure a variety of physical conditions. In order to be profitable, drug companies must sell enough of a product to exceed break even for a reasonable selling price. Break-even points, however, create a problem for drugs targeted at rare diseases, called "orphan drugs." These drugs are typically expensive to develop and have low sales volumes, making it impossible to achieve break even. To ensure that orphan drugs are not overlooked, Congress passed the Orphan Drug Act that provides incentives for pharmaceutical companies to develop drugs for rare diseases that might not generate enough sales to reach break even. The program has been a great success. Since 1982, over 200 orphan drugs have come to market, including **Jacobus Pharmaceuticals Company, Inc.**'s drug for the treatment of tuberculosis and **Novartis AG**'s drug for the treatment of Paget's disease.

OBJ. 4 Using a cost-volume-profit chart and a profit-volume chart, determine the break-even point and sales necessary to achieve a target profit.

Graphic Approach to Cost-Volume-Profit Analysis

Cost-volume-profit analysis can be presented graphically as well as in equation form. Many managers prefer the graphic form because the operating profit or loss for different levels of sales can readily be seen.

Cost-Volume-Profit (Break-Even) Chart

A **cost-volume-profit chart**, sometimes called a *break-even chart*, graphically shows sales, costs, and the related profit or loss for various levels of units sold. It assists in understanding the relationship among sales, costs, and operating profit or loss.

To illustrate, the cost-volume-profit chart in Exhibit 5 is based on the following data:

Total fixed costs	$100,000
Unit selling price	$50
Unit variable cost	30
Unit contribution margin	$20

The cost-volume-profit chart in Exhibit 5 is constructed using the following steps:

Step 1. Volume in units of sales is indicated along the horizontal axis. The range of volume shown is the relevant range in which the company expects to operate. Dollar amounts of total sales and total costs are indicated along the vertical axis.

Step 2. A sales line is plotted by beginning at zero on the left corner of the graph. A second point is determined by multiplying any units of sales on the horizontal axis by the unit sales price of $50. For example, for 10,000 units of sales, the total sales would be $500,000 (10,000 units × $50). The sales line is drawn upward to the right from zero through the $500,000 point.

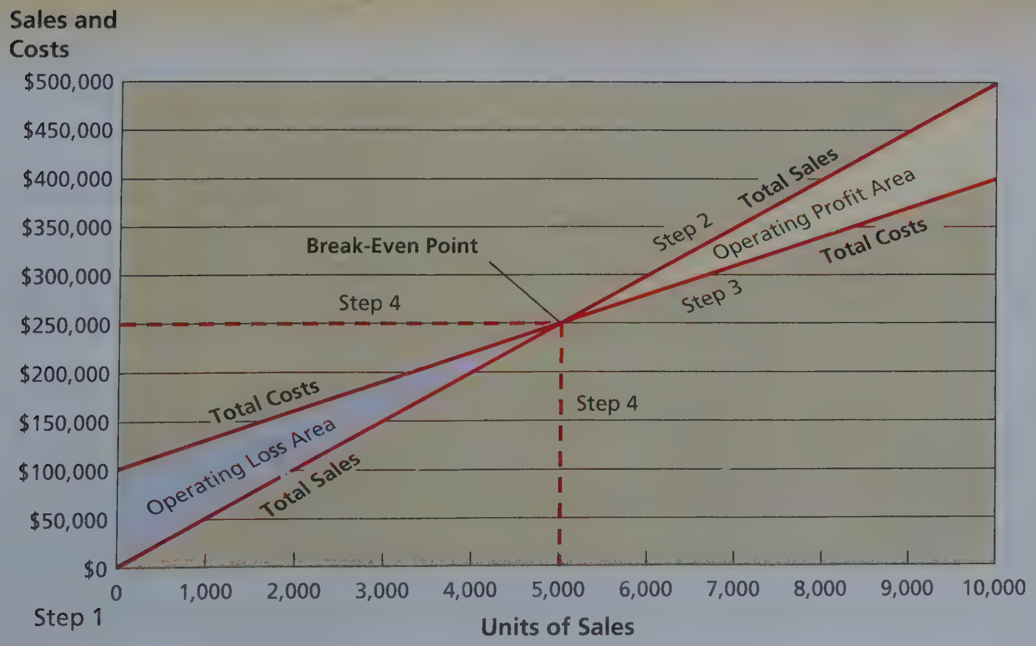
Step 3. A cost line is plotted by beginning with total fixed costs, $100,000, on the vertical axis. A second point is determined by multiplying any units of sales on the horizontal axis by the unit variable costs and adding the fixed costs. For example, for 10,000 units of sales, the total estimated costs would be $400,000 [(10,000 units × $30) + $100,000]. The cost line is drawn upward to the right from $100,000 on the vertical axis through the $400,000 point.

Step 4. The break-even point is the intersection point of the total sales and total cost lines. A vertical dotted line drawn downward at the intersection point indicates the units of sales at the break-even point. A horizontal dotted line drawn to the left at the intersection point indicates the sales dollars and costs at the break-even point.

In Exhibit 5, the break-even point is $250,000 of sales, which represents sales of 5,000 units. Operating profits will be earned when sales levels are to the right of the break-even point (*operating profit area*). Operating losses will be incurred when sales levels are to the left of the break-even point (*operating loss area*).

EXHIBIT 5

Cost-Volume-Profit Chart

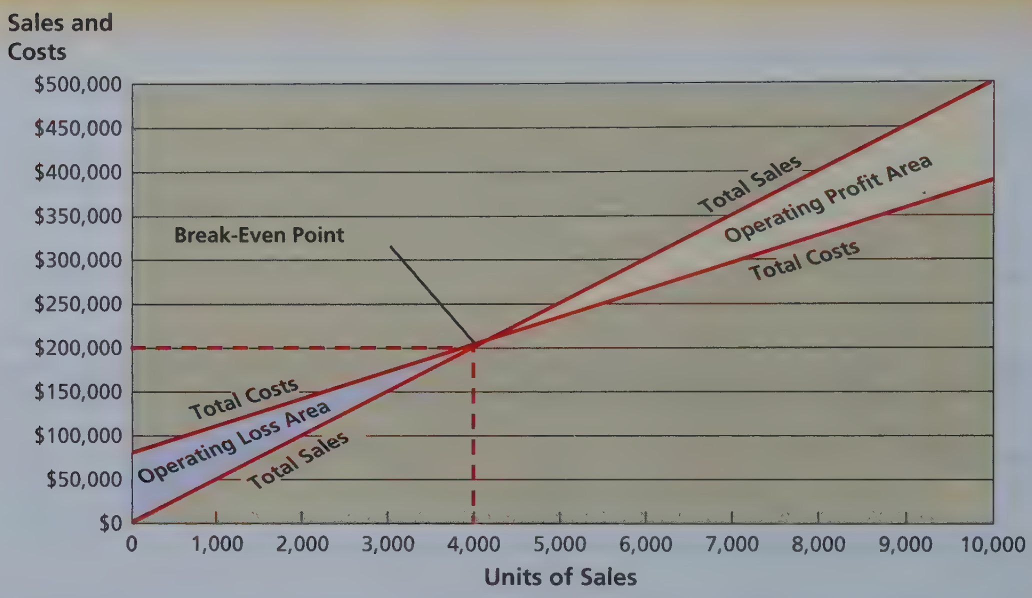


Changes in the unit selling price, total fixed costs, and unit variable costs can be analyzed by using a cost-volume-profit chart. Using the data in Exhibit 5, assume that a proposal to reduce fixed costs by $20,000 is to be evaluated. In this case, the total fixed costs would be $80,000 ($100,000 – $20,000).

As shown in Exhibit 6, the total cost line is redrawn, starting at the $80,000 point (total fixed costs) on the vertical axis. A second point is determined by multiplying any units of sales on the horizontal axis by the unit variable costs and adding the fixed costs. For example, for 10,000 units of sales, the total estimated costs would be $380,000 [(10,000 units × $30) + $80,000]. The cost line is drawn upward to the right from $80,000 on the vertical axis through the $380,000 point. The revised cost-volume-profit chart in Exhibit 6 indicates that the break-even point decreases to $200,000 and 4,000 units of sales.

EXHIBIT 6

Revised Cost-Volume-Profit Chart



Profit-Volume Chart

Another graphic approach to cost-volume-profit analysis is the profit-volume chart. The **profit-volume chart** plots only the difference between total sales and total costs (or profits). In this way, the profit-volume chart allows managers to determine the operating profit (or loss) for various levels of units sold.

To illustrate, the profit-volume chart in Exhibit 7 is based on the same data as used in Exhibit 5. These data are as follows:

Total fixed costs	$100,000
Unit selling price	$50
Unit variable cost	30
Unit contribution margin	$20

The maximum operating loss is equal to the fixed costs of $100,000. Assuming that the maximum units that can be sold within the relevant range is 10,000 units, the maximum operating profit is $100,000, as shown below.

	Sales (10,000 units × $50)	$500,000
	Variable costs (10,000 units × $30)	300,000
	Contribution margin (10,000 units × $20)	$200,000
	Fixed costs	100,000
Maximum profit →	Operating profit	$100,000

The profit-volume chart in Exhibit 7 is constructed using the following steps:

Step 1. Volume in units of sales is indicated along the horizontal axis. The range of volume shown is the relevant range in which the company expects to operate. In Exhibit 7, the maximum units of sales is 10,000 units. Dollar amounts indicating operating profits and losses are shown along the vertical axis.

Step 2. A point representing the maximum operating loss is plotted on the vertical axis at the left. This loss is equal to the total fixed costs at the zero level of sales. Thus, the maximum operating loss is equal to the fixed costs of $100,000.

Step 3. A point representing the maximum operating profit within the relevant range is plotted on the right. Assuming that the maximum unit sales within the relevant range is 10,000 units, the maximum operating profit is $100,000.

Step 4. A diagonal profit line is drawn connecting the maximum operating loss point with the maximum operating profit point.

Step 5. The profit line intersects the horizontal zero operating profit line at the break-even point in units of sales. The area indicating an operating profit is identified to the right of the intersection, and the area indicating an operating loss is identified to the left of the intersection.

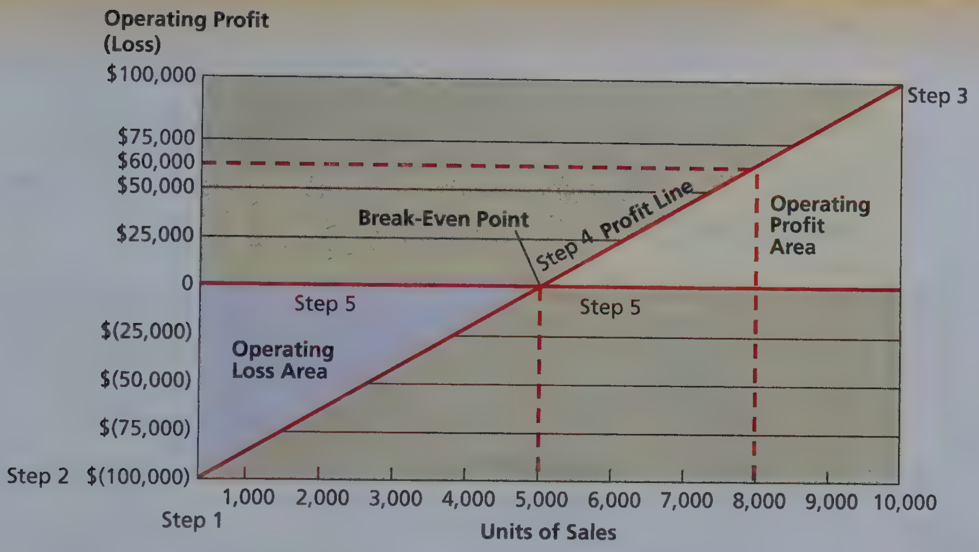


EXHIBIT 7

Profit-Volume Chart

In Exhibit 7, the break-even point is 5,000 units of sales, which is equal to total sales of $250,000 (5,000 units × $50). Operating profit will be earned when sales levels are to the right of the break-even point (*operating profit area*). Operating losses will be incurred when sales levels are to the left of the break-even point (*operating loss area*). For example, at sales of 8,000 units, an operating profit of $60,000 will be earned, as shown in Exhibit 7.

Changes in the unit selling price, total fixed costs, and unit variable costs on profit can be analyzed using a profit-volume chart. Using the data in Exhibit 7, assume the effect on profit of an increase of $20,000 in fixed costs is to be evaluated. In this case, the total fixed costs would be $120,000 ($100,000 + $20,000), and the maximum operating loss would also be $120,000. At the maximum sales of 10,000 units, the maximum operating profit would be $80,000, as shown below.

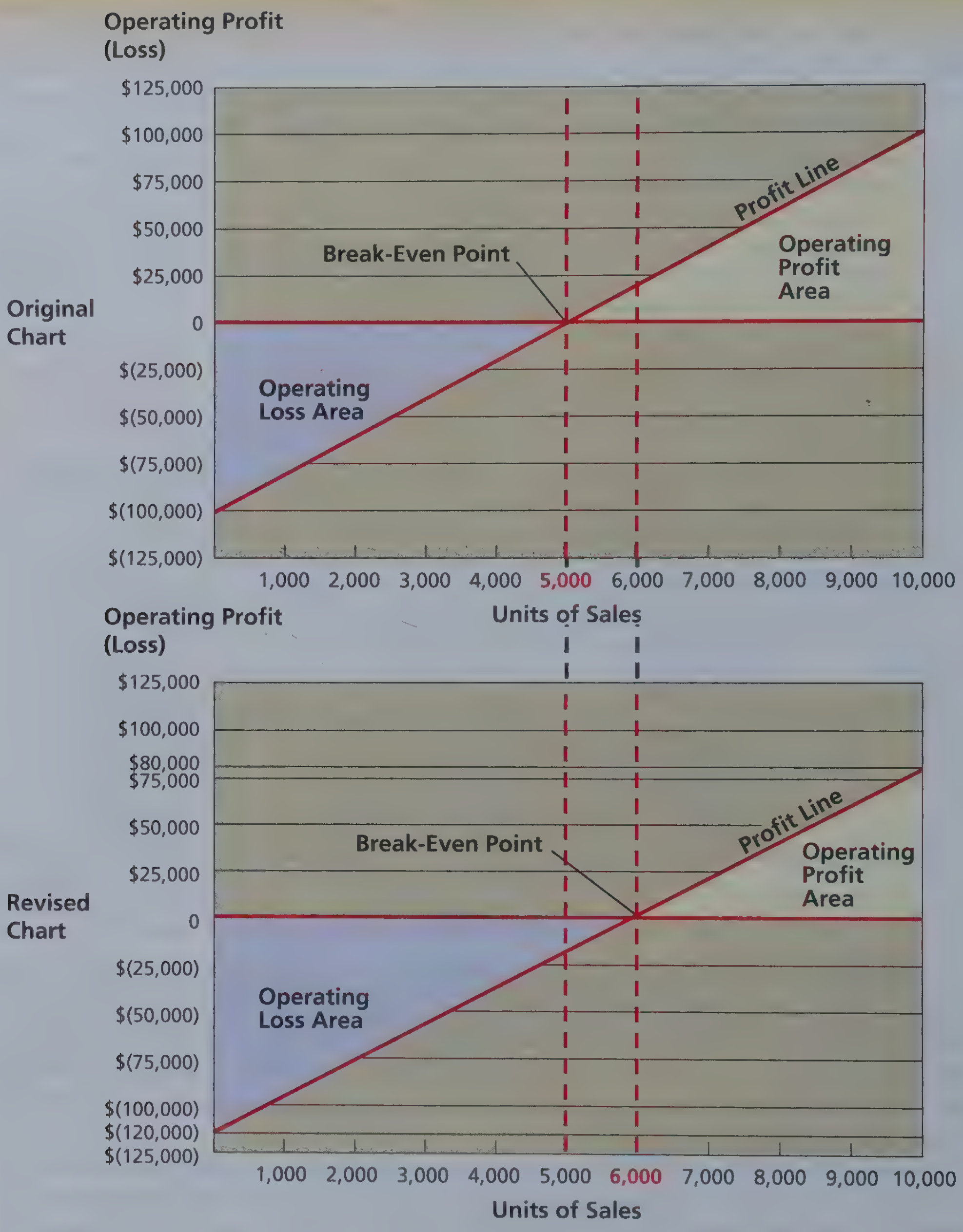
Sales (10,000 units × $50)	$500,000
Variable costs (10,000 units × $30)	300,000
Contribution margin (10,000 units × $20)	$200,000
Fixed costs	120,000
Operating profit	$ 80,000

Revised maximum profit

A revised profit-volume chart is constructed by plotting the maximum operating loss and maximum operating profit points and drawing the revised profit line. The original and the revised profit-volume charts are shown in Exhibit 8.

EXHIBIT 8

Original Profit-Volume Chart and Revised Profit-Volume Chart



The revised profit-volume chart indicates that the break-even point is 6,000 units of sales. This is equal to total sales of $300,000 (6,000 units × $50). The operating loss area of the chart has increased, while the operating profit area has decreased.

Use of Computers in Cost-Volume-Profit Analysis

With computers, the graphic approach and the mathematical approach to cost-volume-profit analysis are easy to use. Managers can vary assumptions regarding selling prices, costs, and volume and can observe the effects of each change on the break-even point and profit. Such an analysis is called a *"what if"* analysis or *sensitivity* analysis.

Assumptions of Cost-Volume-Profit Analysis

Cost-volume-profit analysis depends on several assumptions. The primary assumptions are as follows:

1. Total sales and total costs can be represented by straight lines.
2. Within the relevant range of operating activity, the efficiency of operations does not change.
3. Costs can be divided into fixed and variable components.
4. The sales mix is constant.
5. There is no change in the inventory quantities during the period.

These assumptions simplify cost-volume-profit analysis. Since they are often valid for the relevant range of operations, cost-volume-profit analysis is useful for decision making.[3]

Special Cost-Volume-Profit Relationships

OBJ. 5 Compute the break-even point for a company selling more than one product, the operating leverage, and the margin of safety.

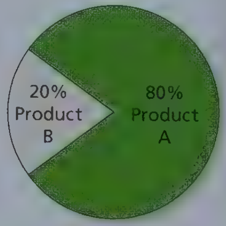
Cost-volume-profit analysis can also be used when a company sells several products with different costs and prices. In addition, operating leverage and the margin of safety are useful in analyzing cost-volume-profit relationships.

Sales Mix Considerations

Many companies sell more than one product at different selling prices. In addition, the products normally have different unit variable costs and, thus, different unit contribution margins. In such cases, break-even analysis can still be performed by considering the sales mix. The **sales mix** is the relative distribution of sales among the products sold by a company.

To illustrate, assume that Cascade Company sold Products A and B during the past year as follows:

Total fixed costs	$200,000	
	Product A	**Product B**
Unit selling price	$90	$140
Unit variable cost	70	95
Unit contribution margin	$20	$ 45
Units sold	8,000	2,000
Sales mix	80%	20%



Sales Mix

The sales mix for Products A and B is expressed as a percentage of total units sold. For Cascade Company, a total of 10,000 (8,000 + 2,000) units were sold during the year. Therefore, the sales mix is 80% (8,000/10,000) for Product A and 20% for Product B (2,000/10,000) as shown above. The sales mix could also be expressed as the ratio 80:20.

For break-even analysis, it is useful to think of Products A and B as components of one overall enterprise product called E. The unit selling price of E equals the sum of the unit selling prices of each product multiplied by its sales mix percentage. Likewise, the unit variable cost and unit contribution margin of E equal the sum of the unit variable costs and unit contribution margins of each product multiplied by its sales mix percentage.

For Cascade Company, the unit selling price, unit variable cost, and unit contribution margin for E are computed as follows:

	Product E		**Product A**		**Product B**
Unit selling price of E	$100	=	($90 × 0.8)	+	($140 × 0.2)
Unit variable cost of E	75	=	($70 × 0.8)	+	($95 × 0.2)
Unit contribution margin of E	$ 25	=	($20 × 0.8)	+	($45 × 0.2)

---

[3] The impact of violating these assumptions is discussed in advanced accounting texts.

The break-even point of 8,000 units of E can be determined in the normal manner as shown below.

$$\text{Break-Even Sales (units) for E} = \frac{\text{Fixed Costs}}{\text{Unit Contribution Margin}} = \frac{\$200{,}000}{\$25} = 8{,}000\text{ units}$$

Since the sales mix for Products A and B is 80% and 20% respectively, the break-even quantity of A is 6,400 units (8,000 units × 80%) and B is 1,600 units (8,000 units × 20%).

The preceding break-even analysis is verified by the following income statement:

	Product A	Product B	Total
Sales:			
6,400 units × $90	$576,000		$576,000
1,600 units × $140		$224,000	224,000
Total sales	$576,000	$224,000	$800,000
Variable costs:			
6,400 units × $70	$448,000		$448,000
1,600 units × $95		$152,000	152,000
Total variable costs	$448,000	$152,000	$600,000
Contribution margin	$128,000	$ 72,000	$200,000
Fixed costs			200,000
Income from operations			$ 0

Break-even point → Income from operations

The effects of changes in the sales mix on the break-even point can be determined by assuming a different sales mix. The break-even point of E can then be recomputed.

Example Exercise 21-5 Sales Mix and Break-Even Analysis

OBJ 5

Megan Company has fixed costs of $180,000. The unit selling price, variable cost per unit, and contribution margin per unit for the company's two products are provided below.

Product	Selling Price	Variable Cost per Unit	Contribution Margin per Unit
Q	$160	$100	$60
Z	100	80	20

The sales mix for products Q and Z is 75% and 25%, respectively. Determine the break-even point in units of Q and Z.

Follow My Example 21-5

Unit selling price of E:	[($160 × 0.75) + ($100 × 0.25)] =	$145
Unit variable cost of E:	[($100 × 0.75) + ($80 × 0.25)] =	95
Unit contribution margin of E:		$ 50

Break-Even Sales (units) = 3,600 units = $180,000/$50

Practice Exercises: **PE 21-5A, PE 21-5B**

Operating Leverage

The relationship of a company's contribution margin to income from operations is measured by **operating leverage**. A company's operating leverage is computed as follows:

$$\text{Operating Leverage} = \frac{\text{Contribution Margin}}{\text{Income from Operations}}$$

The difference between contribution margin and income from operations is fixed costs. Thus, companies with high fixed costs will normally have a high operating leverage. Examples of such companies include airline and automotive companies.

Low operating leverage is normal for companies that are labor intensive, such as professional service companies, which have low fixed costs.

To illustrate operating leverage, assume the following data for Jones Inc. and Wilson Inc.:

	Jones Inc.	Wilson Inc.
Sales	$400,000	$400,000
Variable costs	300,000	300,000
Contribution margin	$100,000	$100,000
Fixed costs	80,000	50,000
Income from operations	$ 20,000	$ 50,000

As shown above, Jones Inc. and Wilson Inc. have the same sales, the same variable costs, and the same contribution margin. However, Jones Inc. has larger fixed costs than Wilson Inc. and, thus, a higher operating leverage. The operating leverage for each company is computed as follows:

Jones Inc.

$$\text{Operating Leverage} = \frac{\text{Contribution Margin}}{\text{Income from Operations}} = \frac{\$100{,}000}{\$20{,}000} = 5$$

Wilson Inc.

$$\text{Operating Leverage} = \frac{\text{Contribution Margin}}{\text{Income from Operations}} = \frac{\$100{,}000}{\$50{,}000} = 2$$

Operating leverage can be used to measure the impact of changes in sales on income from operations. Using operating leverage, the effect of changes in sales on income from operations is computed as follows:

$$\begin{array}{c}\text{Percent Change in}\\ \text{Income from Operations}\end{array} = \begin{array}{c}\text{Percent Change in}\\ \text{Sales}\end{array} \times \begin{array}{c}\text{Operating}\\ \text{Leverage}\end{array}$$

To illustrate, assume that sales increased by 10%, or $40,000 ($400,000 × 10%), for Jones Inc. and Wilson Inc. The percent increase in income from operations for Jones Inc. and Wilson Inc. is computed below.

Jones Inc.

$$\begin{array}{c}\text{Percent Change in}\\ \text{Income from Operations}\end{array} = \begin{array}{c}\text{Percent Change in}\\ \text{Sales}\end{array} \times \begin{array}{c}\text{Operating}\\ \text{Leverage}\end{array}$$

$$\begin{array}{c}\text{Percent Change in}\\ \text{Income from Operations}\end{array} = 10\% \times 5 = 50\%$$

Wilson Inc.

$$\begin{array}{c}\text{Percent Change in}\\ \text{Income from Operations}\end{array} = \begin{array}{c}\text{Percent Change in}\\ \text{Sales}\end{array} \times \begin{array}{c}\text{Operating}\\ \text{Leverage}\end{array}$$

$$\begin{array}{c}\text{Percent Change in}\\ \text{Income from Operations}\end{array} = 10\% \times 2 = 20\%$$

As shown above, Jones Inc.'s income from operations increases by 50%, while Wilson Inc.'s income from operations increases by only 20%. The validity of this analysis is shown in the following income statements for Jones Inc. and Wilson Inc. based on the 10% increase in sales:

	Jones Inc.	Wilson Inc.
Sales	$440,000	$440,000
Variable costs	330,000	330,000
Contribution margin	$110,000	$110,000
Fixed costs	80,000	50,000
Income from operations	$ 30,000	$ 60,000

The preceding income statements indicate that Jones Inc.'s income from operations increased from \$20,000 to \$30,000, a 50% increase (\$10,000/\$20,000). In contrast, Wilson Inc.'s income from operations increased from \$50,000 to \$60,000, a 20% increase (\$10,000/\$50,000).

Because even a small increase in sales will generate a large percentage increase in income from operations, Jones Inc. might consider ways to increase sales. Such actions could include special advertising or sales promotions. In contrast, Wilson Inc. might consider ways to increase operating leverage by reducing variable costs.

The impact of a change in sales on income from operations for companies with high and low operating leverage can be summarized as follows:

Operating Leverage	Percentage Impact on Income from Operations from a Change in Sales
High	Large
Low	Small

Example Exercise 21-6 Operating Leverage

OBJ. 5

Tucker Company reports the following data:

Sales	\$750,000
Variable costs	500,000
Contribution margin	\$250,000
Fixed costs	187,500
Income from operations	\$ 62,500

Determine Tucker Company's operating leverage.

Follow My Example 21-6

$$\text{Operating Leverage} = \frac{\text{Contribution Margin}}{\text{Income from Operations}} = \frac{\$250{,}000}{\$62{,}500} = 4.0$$

Practice Exercises: **PE 21-6A, PE 21-6B**

Margin of Safety

The **margin of safety** indicates the possible decrease in sales that may occur before an operating loss results. Thus, if the margin of safety is low, even a small decline in sales revenue may result in an operating loss.

The margin of safety may be expressed in the following ways:

1. Dollars of sales
2. Units of sales
3. Percent of current sales

To illustrate, assume the following data:

Sales	\$250,000
Sales at the break-even point	200,000
Unit selling price	25

The margin of safety in dollars of sales is \$50,000 (\$250,000 – \$200,000). The margin of safety in units is 2,000 units (\$50,000/\$25). The margin of safety expressed as a percent of current sales is 20%, as computed below.

$$\text{Margin of Safety} = \frac{\text{Sales} - \text{Sales at Break-Even Point}}{\text{Sales}}$$

$$= \frac{\$250{,}000 - \$200{,}000}{\$250{,}000} = \frac{\$50{,}000}{\$250{,}000} = 20\%$$

Therefore, the current sales may decline $50,000, 2,000 units, or 20% before an operating loss occurs.

Example Exercise 21-7 Margin of Safety OBJ. 5

Rachel Company has sales of $400,000, and the break-even point in sales dollars is $300,000. Determine the company's margin of safety as a percent of current sales.

Follow My Example 21-7

$$\text{Margin of Safety} = \frac{\text{Sales} - \text{Sales at Break-Even Point}}{\text{Sales}} = \frac{\$400{,}000 - \$300{,}000}{\$400{,}000} = \frac{\$100{,}000}{\$400{,}000} = 25\%$$

Practice Exercises: **PE 21-7A, PE 21-7B**

APPENDIX

Variable Costing

The cost of manufactured products consists of direct materials, direct labor, and factory overhead. The reporting of all these costs in financial statements is called **absorption costing**. Absorption costing is required under generally accepted accounting principles for financial statements distributed to external users. However, alternative reports may be prepared for decision-making purposes by managers and other internal users. One such alternative reporting is *variable costing* or *direct costing*.

In *variable costing*, the cost of goods manufactured is composed only of variable costs. Thus, the cost of goods manufactured consists of direct materials, direct labor, and *variable* factory overhead.

In a variable costing income statement, *fixed* factory overhead costs do not become a part of the cost of goods manufactured. Instead, fixed factory overhead costs are treated as a period expense.

Cost of Goods Manufactured

Absorption Costing	Variable Costing
Direct materials	Direct materials
Direct labor	Direct labor
Variable factory overhead	Variable factory overhead
Fixed factory overhead	

The form of a variable costing income statement is as follows:

Sales		$XXX
Variable cost of goods sold		XXX
Manufacturing margin		$XXX
Variable selling and administrative expenses		XXX
Contribution margin		$XXX
Fixed costs:		
Fixed manufacturing costs	$XXX	
Fixed selling and administrative expenses	XXX	XXX
Income from operations		$XXX

Manufacturing margin is sales less variable cost of goods sold. *Variable cost of goods sold* consists of direct materials, direct labor, and variable factory overhead for the units sold. *Contribution margin* is manufacturing margin less variable selling and administrative expenses. Subtracting fixed costs from contribution margin yields *income from operations*.

The variable costing income statement facilitates managerial decision making since manufacturing margin and contribution margin are reported directly. As illustrated in this chapter, contribution margin is used in break-even analysis and other analyses.

To illustrate the variable costing income statement, assume that 15,000 units are manufactured and sold at a price of $50. The related costs and expenses are as follows:

	Total Cost	Number of Units	Unit Cost
Manufacturing costs:			
Variable	$375,000	15,000	$25
Fixed	150,000	15,000	10
Total	$525,000		$35
Selling and administrative expenses:			
Variable ($5 per unit sold)	$ 75,000		
Fixed	50,000		
Total	$125,000		

Exhibit 9 shows the variable costing income statement prepared from the above data. The computations are shown in parentheses.

EXHIBIT 9

Variable Costing Income Statement

Sales (15,000 × $50)		$750,000
Variable cost of goods sold (15,000 × $25)		375,000
Manufacturing margin		$375,000
Variable selling and administrative expenses (15,000 × $5)		75,000
Contribution margin		$300,000
Fixed costs:		
Fixed manufacturing costs	$150,000	
Fixed selling and administrative expenses	50,000	200,000
Income from operations		$100,000

Exhibit 10 illustrates the absorption costing income statement prepared from the same data. The absorption costing income statement does not distinguish between variable and fixed costs. All manufacturing costs are included in the cost of goods sold. Deducting the cost of goods sold from sales yields the *gross profit*. Deducting the selling and administrative expenses from gross profit yields the *income from operations*.

EXHIBIT 10

Absorption Costing Income Statement

Sales (15,000 × $50)	$750,000
Cost of goods sold (15,000 × $35)	525,000
Gross profit	$225,000
Selling and administrative expenses ($75,000 + $50,000)	125,000
Income from operations	$100,000

The relationship between variable and absorption costing *income from operations* is summarized on the next page.

If Units Sold < Units Manufactured
Then Variable Costing Income < Absorption Costing Income

If Units Sold > Units Manufactured
Then Variable Costing Income > Absorption Costing Income

In Exhibits 9 and 10, 15,000 units were manufactured and sold. Thus, the variable and absorption costing income statements reported the same income from operations of $100,000. However, assume that in the preceding example only 12,000 units of the 15,000 units manufactured were sold. Exhibit 11 shows the related variable and absorption costing income statements.

EXHIBIT 11

Units Manufactured Exceed Units Sold

Variable Costing Income Statement		
Sales (12,000 × $50)		$600,000
Variable cost of goods sold:		
Variable cost of goods manufactured (15,000 × $25)	$375,000	
Less ending inventory (3,000 × $25)	75,000	
Variable cost of goods sold		300,000
Manufacturing margin		$300,000
Variable selling and administrative expenses (12,000 × $5)		60,000
Contribution margin		$240,000
Fixed costs:		
Fixed manufacturing costs	$150,000	
Fixed selling and administrative expenses	50,000	200,000
Income from operations		$ 40,000
Absorption Costing Income Statement		
Sales (12,000 × $50)		$600,000
Cost of goods sold:		
Cost of goods manufactured (15,000 × $35)	$525,000	
Less ending inventory (3,000 × $35)	105,000	
Cost of goods sold		420,000
Gross profit		$180,000
Selling and administrative expenses [(12,000 × $5) + $50,000]		110,000
Income from operations		$ 70,000

Exhibit 11 shows a $30,000 ($70,000 – $40,000) difference in income from operations. This difference is due to the fixed manufacturing costs. All of the $150,000 of fixed manufacturing costs is included as a period expense in the variable costing statement. However, the 3,000 units of ending inventory in the absorption costing statement includes $30,000 (3,000 units × $10) of fixed manufacturing costs. By being included in inventory, this $30,000 is thus excluded from the current cost of goods sold. Thus, the absorption costing income from operations is $30,000 higher than the income from operations for variable costing.

A similar analysis could be used to illustrate that income from operations under variable costing is greater than income from operations under absorption costing when the units manufactured are less than the units sold.

Under absorption costing, increases or decreases in income from operations can result from changes in inventory levels. For example, in the preceding illustration, a 3,000 increase in ending inventory created a $30,000 increase in income from operations under absorption costing. Such increases (decreases) could be misinterpreted by managers using absorption costing as operating efficiencies (inefficiencies). This is one of the reasons that variable costing is often used by managers for cost control, product pricing, and production planning. Such uses of variable costing are discussed in advanced accounting texts.

At a Glance 21

OBJ. 1 Classify costs as variable costs, fixed costs, or mixed costs.

Key Points Variable costs vary in proportion to changes in the level of activity. Fixed costs remain the same in total dollar amount as the level of activity changes. Mixed costs are comprised of both fixed and variable costs.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe variable costs.		
• Describe fixed costs.		
• Describe mixed costs.		
• Separate mixed costs using the high-low method.	EE21-1	PE21-1A, 21-1B

OBJ. 2 Compute the contribution margin, the contribution margin ratio, and the unit contribution margin.

Key Points Contribution margin is the excess of sales revenue over variable costs and can be expressed as a ratio (contribution margin ratio) or a dollar amount (unit contribution margin).

Learning Outcomes	Example Exercises	Practice Exercises
• Describe contribution margin.		
• Compute the contribution margin ratio.	EE21-2	PE21-2A, 21-2B
• Compute the unit contribution margin.	EE21-2	PE21-2A, 21-2B

OBJ. 3 Determine the break-even point and sales necessary to achieve a target profit.

Key Points The break-even point is the point at which a business's revenues exactly equal costs. The mathematical approach to cost-volume-profit analysis uses the unit contribution margin concept and mathematical equations to determine the break-even point and the volume necessary to achieve a target profit.

Learning Outcomes	Example Exercises	Practice Exercises
• Compute the break-even point in units.	EE21-3	PE21-3A, 21-3B
• Describe how changes in fixed costs affect the break-even point.		
• Describe how changes in unit variable costs affect the break-even point.		
• Describe how a change in the unit selling price affects the break-even point.	EE21-3	PE21-3A, 21-3B
• Modify the break-even equation to compute the unit sales required to earn a target profit.	EE21-4	PE21-4A, 21-4B

OBJ. 4

Using a cost-volume-profit chart and a profit-volume chart, determine the break-even point and sales necessary to achieve a target profit.

Key Points Graphical methods can be used to determine the break-even point and the volume necessary to achieve a target profit. A cost-volume-profit chart focuses on the relationship among costs, sales, and operating profit or loss. The profit-volume chart focuses on profits rather than on revenues and costs.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe how to construct a cost-volume-profit chart.		
• Determine the break-even point using a cost-volume-profit chart.		
• Describe how to construct a profit-volume chart.		
• Determine the break-even point using a profit-volume chart.		
• Describe factors affecting the reliability of cost-volume-profit analysis.		

OBJ. 5

Compute the break-even point for a company selling more than one product, the operating leverage, and the margin of safety.

Key Points Cost-volume-profit relationships can be used for analyzing (1) sales mix, (2) operating leverage, and (3) margin of safety.

Learning Outcomes	Example Exercises	Practice Exercises
• Compute the break-even point for a mix of products.	EE21-5	PE21-5A, 21-5B
• Compute operating leverage.	EE21-6	PE21-6A, 21-6B
• Compute the margin of safety.	EE21-7	PE21-7A, 21-7B

Key Terms

absorption costing (989)
activity bases (drivers) (966)
break-even point (975)
contribution margin (973)
contribution margin ratio (973)
cost behavior (966)
cost-volume-profit analysis (972)
cost-volume-profit chart (981)
fixed costs (968)
high-low method (969)
margin of safety (988)
mixed costs (969)
operating leverage (986)
profit-volume chart (982)
relevant range (966)
sales mix (985)
unit contribution margin (974)
variable costing (972)
variable costs (966)

Illustrative Problem

Wyatt Inc. expects to maintain the same inventories at the end of the year as at the beginning of the year. The estimated fixed costs for the year are $288,000, and the estimated variable costs per unit are $14. It is expected that 60,000 units will be sold at a price of $20 per unit. Maximum sales within the relevant range are 70,000 units.

Instructions

1. What is (a) the contribution margin ratio and (b) the unit contribution margin?
2. Determine the break-even point in units.
3. Construct a cost-volume-profit chart, indicating the break-even point.
4. Construct a profit-volume chart, indicating the break-even point.
5. What is the margin of safety?

Solution

1. a. $$\text{Contribution Margin Ratio} = \frac{\text{Sales} - \text{Variable Costs}}{\text{Sales}}$$

$$\text{Contribution Margin Ratio} = \frac{(60{,}000 \text{ units} \times \$20) - (60{,}000 \text{ units} \times \$14)}{(60{,}000 \text{ units} \times \$20)}$$

$$\text{Contribution Margin Ratio} = \frac{\$1{,}200{,}000 - \$840{,}000}{\$1{,}200{,}000} = \frac{\$360{,}000}{\$1{,}200{,}000}$$

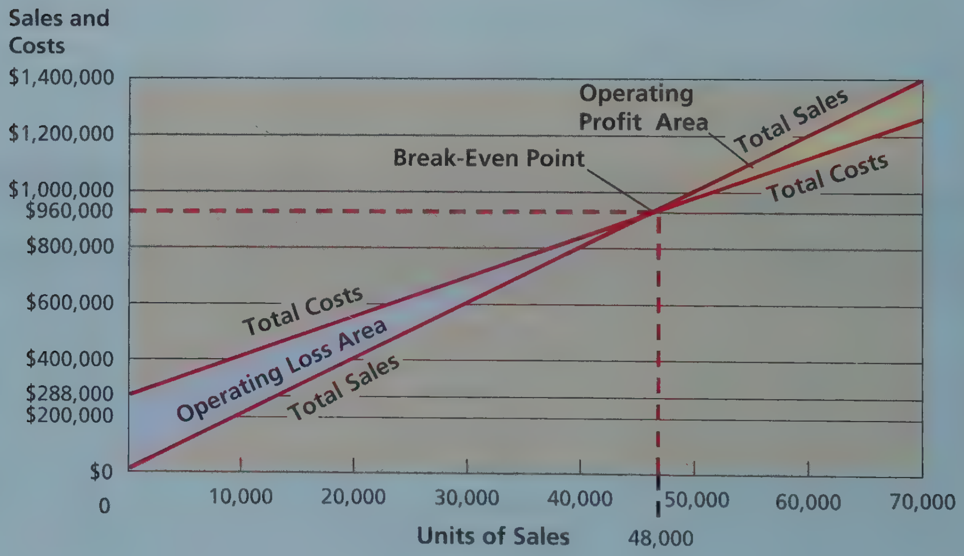
Contribution Margin Ratio = 30%

b. Unit Contribution Margin = Unit Selling Price – Unit Variable Costs
Unit Contribution Margin = \$20 – \$14 = \$6

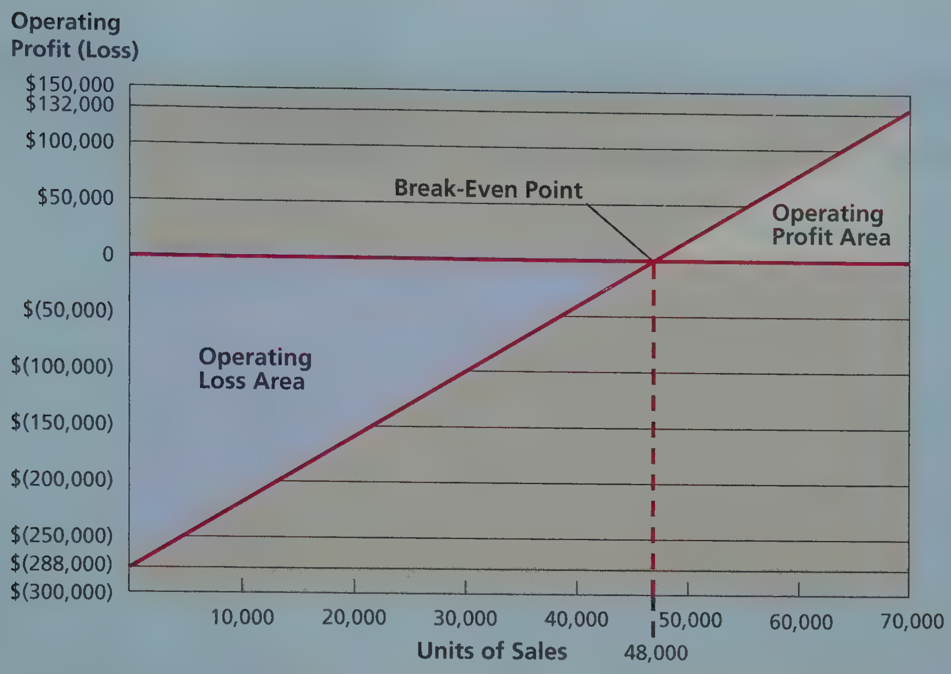
2. $$\text{Break-Even Sales (units)} = \frac{\text{Fixed Costs}}{\text{Unit Contribution Margin}}$$

$$\text{Break-Even Sales (units)} = \frac{\$288{,}000}{\$6} = 48{,}000 \text{ units}$$

3.



4.



5. Margin of safety:

Expected sales (60,000 units × $20)	$1,200,000
Break-even point (48,000 units × $20)	960,000
Margin of safety	$ 240,000

or

$$\text{Margin of Safety (units)} = \frac{\text{Margin of Safety (dollars)}}{\text{Unit Selling Price}}$$

or

12,000 units ($240,000/$20)

or

$$\text{Margin of Safety} = \frac{\text{Sales} - \text{Sales at Break-Even Point}}{\text{Sales}}$$

$$\text{Margin of Safety} = \frac{\$240{,}000}{\$1{,}200{,}000} = 20\%$$

Discussion Questions

1. Describe how total variable costs and unit variable costs behave with changes in the level of activity.
2. Which of the following costs would be classified as variable and which would be classified as fixed, if units produced is the activity base?
   a. Direct materials costs
   b. Direct labor costs
   c. Electricity costs of $0.35 per kilowatt-hour
3. How would each of the following fixed/variable costs be classified if units produced is the activity base?
   a. Salary of factory supervisor ($70,000 per year)
   b. Straight-line depreciation of plant and equipment
   c. Property rent of $6,000 per month on plant and equipment
4. In applying the high-low method of cost estimation, how is the total fixed cost estimated?
5. If fixed costs increase, what would be the impact on the (a) contribution margin? (b) income from operations?
6. An examination of the accounting records of Clowney Company disclosed a high contribution margin ratio and production at a level below maximum capacity. Based on this information, suggest a likely means of improving income from operations. Explain.
7. If the unit cost of direct materials is decreased, what effect will this change have on the break-even point?
8. Both Austin Company and Hill Company had the same unit sales, total costs, and income from operations for the current fiscal year; yet Austin Company had a lower break-even point than Hill Company. Explain the reason for this difference in break-even points.
9. How does the sales mix affect the calculation of the break-even point?
10. What does operating leverage measure, and how is it computed?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 1 **EE 21-1** *p. 971*

PE 21-1A High-low method

The manufacturing costs of Fuld Industries for three months of the year are provided below.

	Total Costs	Production
January	$175,000	7,500 units
February	390,000	20,000
March	490,000	25,000

Using the high-low method, determine (a) the variable cost per unit and (b) the total fixed cost.

OBJ. 1 **EE 21-1** *p. 971*

PE 21-1B High-low method

The manufacturing costs of Greenburg Enterprises for the first three months of the year are provided below.

	Total Costs	Production
April	$210,000	2,000 units
May	320,000	4,000
June	225,000	2,500

Using the high-low method, determine (a) the variable cost per unit and (b) the total fixed cost.

OBJ. 2 **EE 21-2** *p. 975*

PE 21-2A Contribution margin

United Merchants Company sells 4,000 units at $60 per unit. Variable costs are $45 per unit, and fixed costs are $40,000. Determine (a) the contribution margin ratio, (b) the unit contribution margin, and (c) income from operations.

OBJ. 2 **EE 21-2** *p. 975*

PE 21-2B Contribution margin

Gluxman Company sells 10,000 units at $25 per unit. Variable costs are $22 per unit, and fixed costs are $20,000. Determine (a) the contribution margin ratio, (b) the unit contribution margin, and (c) income from operations.

OBJ. 3 **EE 21-3** *p. 979*

PE 21-3A Break-even point

Gregory Enterprises sells a product for $80 per unit. The variable cost is $55 per unit, while fixed costs are $20,000. Determine (a) the break-even point in sales units and (b) the break-even point if the selling price were increased to $87 per unit.

OBJ. 3 **EE 21-3** *p. 979*

PE 21-3B Break-even point

Grobe Inc. sells a product for $50 per unit. The variable cost is $40 per unit, while fixed costs are $14,000. Determine (a) the break-even point in sales units and (b) the break-even point if the selling price were decreased to $45 per unit.

Learning Objectives *Example Exercises*

OBJ. 3 **EE 21-4** *p. 980*

PE 21-4A Target profit

Ivey Inc. sells a product for $100 per unit. The variable cost is $75 per unit, and fixed costs are $30,000. Determine (a) the break-even point in sales units and (b) the break-even point in sales units if the company desires a target profit of $10,000.

OBJ. 3 **EE 21-4** *p. 980*

PE 21-4B Target profit

Hofstra Company sells a product for $120 per unit. The variable cost is $100 per unit, and fixed costs are $120,000. Determine (a) the break-even point in sales units and (b) the break-even point in sales units if the company desires a target profit of $40,000.

OBJ. 5 **EE 21-5** *p. 986*

PE 21-5A Sales mix and break-even analysis

Figg Inc. has fixed costs of $420,000. The unit selling price, variable cost per unit, and contribution margin per unit for the company's two products are provided below.

Product	Selling Price	Variable Cost per Unit	Contribution Margin per Unit
L	$100	$80	$20
M	80	62	18

The sales mix for products L and M is 60% and 40%, respectively. Determine the break-even point in units of L and M.

OBJ. 5 **EE 21-5** *p. 986*

PE 21-5B Sales mix and break-even analysis

Golub Company has fixed costs of $100,000. The unit selling price, variable cost per unit, and contribution margin per unit for the company's two products are provided below.

Product	Selling Price	Variable Cost per Unit	Contribution Margin per Unit
X	$30	$25	$ 5
Y	20	10	10

The sales mix for products X and Y is 75% and 25%, respectively. Determine the break-even point in units of X and Y.

OBJ. 5 **EE 21-6** *p. 988*

PE 21-6A Operating leverage

Emily Enterprises reports the following data:

Sales	$180,000
Variable costs	100,000
Contribution margin	$ 80,000
Fixed costs	30,000
Income from operations	$ 50,000

Determine Emily Enterprises's operating leverage.

OBJ. 5 **EE 21-6** *p. 988*

PE 21-6B Operating leverage

Walker Co. reports the following data:

Sales	$600,000
Variable costs	250,000
Contribution margin	$350,000
Fixed costs	150,000
Income from operations	$200,000

Determine Walker Co.'s operating leverage.

OBJ. 5 **EE 21-7** *p. 989*

PE 21-7A Margin of safety

Mitra Inc. has sales of $910,000, and the break-even point in sales dollars is $746,200. Determine the company's margin of safety as a percent of current sales.

Learning Objectives *Example Exercises*

OBJ. 5 **EE 21-7** *p. 989*

PE 21-7B Margin of safety

Marsh Company has sales of $600,000, and the break-even point in sales dollars is $456,000. Determine the company's margin of safety as a percent of current sales.

Exercises

OBJ. 1

EX 21-1 Classify costs

Following is a list of various costs incurred in producing toy robotic helicopters. With respect to the production and sale of these toy helicopters, classify each cost as either variable, fixed, or mixed.

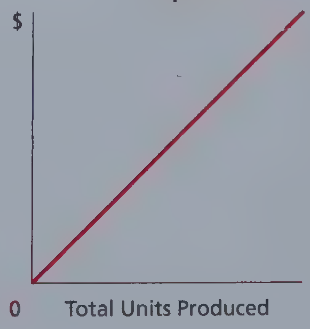
1. Janitorial costs, $5,000 per month
2. Salary of plant manager
3. Oil used in manufacturing equipment
4. Property taxes, $210,000 per year on factory building and equipment
5. Hourly wages of inspectors
6. Plastic
7. Packaging
8. Metal
9. Electricity costs, $0.10 per kilowatt-hour
10. Rent on warehouse, $12,000 per month plus $20 per square foot of storage used
11. Property insurance premiums, $2,000 per month plus $0.008 for each dollar of property over $1,000,000
12. Straight-line depreciation on the production equipment
13. Hourly wages of machine operators
14. Pension cost, $0.75 per employee hour on the job
15. Computer chip (purchased from a vendor)

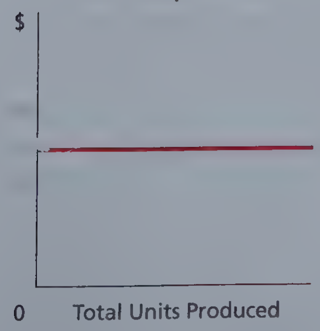
OBJ. 1

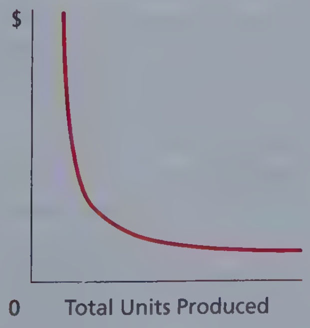
EX 21-2 Identify cost graphs

The following cost graphs illustrate various types of cost behavior:


Cost Graph One


Cost Graph Two


Cost Graph Three


Cost Graph Four

For each of the following costs, identify the cost graph that best illustrates its cost behavior as the number of units produced increases.

a. Electricity costs of $1,000 per month plus $0.10 per kilowatt-hour
b. Per-unit cost of straight-line depreciation on factory equipment
c. Total direct materials cost
d. Per-unit direct labor cost
e. Salary of quality control supervisor, $20,000 per month

OBJ. 1

EX 21-3 Identify activity bases

For a major university, match each cost in the following table with the activity base most appropriate to it. An activity base may be used more than once, or not used at all.

Cost:
1. Financial aid office salaries
2. School supplies
3. Instructor salaries
4. Housing personnel wages
5. Student records office salaries
6. Admissions office salaries

Activity Base:
a. Student credit hours
b. Number of students living on campus
c. Number of enrollment applications
d. Number of financial aid applications
e. Number of enrolled students and alumni
f. Number of student/athletes

OBJ. 1

EX 21-4 Identify activity bases

From the following list of activity bases for an automobile dealership, select the base that would be most appropriate for each of these costs: (1) preparation costs (cleaning, oil, and gasoline costs) for each car received, (2) salespersons' commission of 5% of the sales price for each car sold, and (3) administrative costs for ordering cars.

a. Dollar amount of cars ordered
b. Number of cars on hand
c. Dollar amount of cars sold
d. Number of cars sold
e. Dollar amount of cars received
f. Dollar amount of cars on hand
g. Number of cars received
h. Number of cars ordered

OBJ. 1

EX 21-5 Identify fixed and variable costs

Intuit Inc. develops and sells software products for the personal finance market, including popular titles such as Quicken® and TurboTax®. Classify each of the following costs and expenses for this company as either variable or fixed to the number of units produced and sold:

a. Salaries of human resources personnel
b. User's guides
c. Shipping expenses
d. Advertising
e. Property taxes on general offices
f. Wages of telephone order assistants
g. President's salary
h. Straight-line depreciation of computer equipment
i. Sales commissions
j. CDs
k. Packaging costs
l. Salaries of software developers

OBJ. 1

✓ a. $0.25

EX 21-6 Relevant range and fixed and variable costs

Fortress Inc. manufactures pistons for custom motorcycles within a relevant range of 300,000 to 375,000 pistons per year. Within this range, the following partially completed manufacturing cost schedule has been prepared:

Components produced	300,000	360,000	375,000
Total costs:			
Total variable costs	$ 75,000	(d)	(j)
Total fixed costs	90,000	(e)	(k)
Total costs	$165,000	(f)	(l)
Cost per unit:			
Variable cost per unit	(a)	(g)	(m)
Fixed cost per unit	(b)	(h)	(n)
Total cost per unit	(c)	(i)	(o)

Complete the cost schedule, identifying each cost by the appropriate letter (a) through (o).

OBJ. 1

✓ a. $17.60 per unit

EX 21-7 High-low method

Crane Inc. has decided to use the high-low method to estimate the total cost and the fixed and variable cost components of the total cost. The data for various levels of production are as follows:

Units Produced	Total Costs
10,000	$700,000
15,000	840,000
22,500	920,000

a. Determine the variable cost per unit and the fixed cost.

b. Based on part (a), estimate the total cost for 14,000 units of production.

OBJ. 1

✓ Fixed cost, $200,000

EX 21-8 High-low method for service company

Diamond Railroad decided to use the high-low method and operating data from the past six months to estimate the fixed and variable components of transportation costs. The activity base used by Diamond Railroad is a measure of railroad operating activity, termed "gross-ton miles," which is the total number of tons multiplied by the miles moved.

	Transportation Costs	Gross-Ton Miles
January	$1,190,000	385,000
February	1,043,000	434,000
March	900,000	350,000
April	1,015,000	420,000
May	920,000	360,000
June	1,250,000	525,000

Determine the variable cost per gross-ton mile and the fixed cost.

OBJ. 2

✓ a. 70%

EX 21-9 Contribution margin ratio

a. Bryan Company budgets sales of $1,800,000, fixed costs of $1,000,000, and variable costs of $1,080,000. What is the contribution margin ratio for Bryan Company?

b. If the contribution margin ratio for Carnegie Company is 32%, sales were $900,000, and fixed costs were $210,000, what was the income from operations?

OBJ. 2

✓ b. 34.6%

EX 21-10 Contribution margin and contribution margin ratio

For a recent year, McDonald's company-owned restaurants had the following sales and expenses (in millions):

Sales	$16,561
Food and packaging	$ 5,586
Payroll	4,300
Occupancy (rent, depreciation, etc.)	3,767
General, selling, and administrative expenses	2,355
	$16,008
Income from operations	$ 553

Assume that the variable costs consist of food and packaging, payroll, and 40% of the general, selling, and administrative expenses.

a. What is McDonald's contribution margin? Round to the nearest million.

b. What is McDonald's contribution margin ratio? Round to one decimal place.

c. How much would income from operations increase if same-store sales increased by $400 million for the coming year, with no change in the contribution margin ratio or fixed costs?

OBJ. 3

✓ b. 35,200 units

EX 21-11 Break-even sales and sales to realize income from operations

For the current year ending March 31, Ewok Company expects fixed costs of $740,000, a unit variable cost of $55, and a unit selling price of $80.

a. Compute the anticipated break-even sales (units).

b. Compute the sales (units) required to realize income from operations of $140,000.

OBJ. 3

✓ a. 115,377,060 barrels

EX 21-12 Break-even sales

Anheuser-Busch InBev Companies, Inc., reported the following operating information for a recent year (in millions):

Net sales	$23,507
Cost of goods sold	$10,336
Selling, general and administration	7,831
	$18,167
Income from operations	$ 5,340*

*Before special items

In addition, assume that Anheuser-Busch InBev sold 200 million barrels of beer during the year. Assume that variable costs were 75% of the cost of goods sold and 40% of selling, general and administration expenses. Assume that the remaining costs are fixed. For the following year, assume that Anheuser-Busch InBev expects pricing, variable costs per barrel, and fixed costs to remain constant, except that new distribution and general office facilities are expected to increase fixed costs by $225 million.

a. Compute the break-even number of barrels for the current year. *Note*: For the selling price per barrel and variable costs per barrel, round to the nearest cent. Also, round the break-even to the nearest barrel.

b. Compute the anticipated break-even number of barrels for the following year.

OBJ. 3

✓ a. 11,500 units

EX 21-13 Break-even sales

Currently, the unit selling price of a product is $110, the unit variable cost is $80, and the total fixed costs are $345,000. A proposal is being evaluated to increase the unit selling price to $120.

a. Compute the current break-even sales (units).

b. Compute the anticipated break-even sales (units), assuming that the unit selling price is increased and all costs remain constant.

OBJ. 3

EX 21-14 Break-even analysis

The Junior League of Kernersville, North Carolina, collected recipes from members and published a cookbook entitled *Food Is Love*. The book will sell for $15 per copy. The

chairwoman of the cookbook development committee estimated that the club needed to sell 5,000 books to break even on its $25,000 investment. What is the variable cost per unit assumed in the Junior League's analysis?

OBJ. 3

EX 21-15 Break-even analysis

Media outlets such as ESPN and Fox Sports often have Web sites that provide in-depth coverage of news and events. Portions of these Web sites are restricted to members who pay a monthly subscription to gain access to exclusive news and commentary. These Web sites typically offer a free trial period to introduce viewers to the Web site. Assume that during a recent fiscal year, ESPN.com spent $3,150,000 on a promotional campaign for the ESPN.com Web site that offered two free months of service for new subscribers. In addition, assume the following information:

Number of months an average new customer stays with the service (including the two free months)	23 months
Revenue per month per customer subscription	$15.00
Variable cost per month per customer subscription	$5.00

Determine the number of new customer accounts needed to break even on the cost of the promotional campaign. In forming your answer, (1) treat the cost of the promotional campaign as a fixed cost, and (2) treat the revenue less variable cost per account for the subscription period as the unit contribution margin.

OBJ. 3

EX 21-16 Break-even analysis

Sprint Nextel is one of the largest digital wireless service providers in the United States. In a recent year, it had approximately 36.7 million direct subscribers (accounts) that generated revenue of $35,635 million. Costs and expenses for the year were as follows (in millions):

Cost of revenue	$16,746
Selling, general, and administrative expenses	11,355
Depreciation	5,953

Assume that 80% of the cost of revenue and 30% of the selling, general, and administrative expenses are variable to the number of direct subscribers (accounts).

a. What is Sprint Nextel's break-even number of accounts, using the data and assumptions above? Round units (accounts) to one decimal place.

b. How much revenue per account would be sufficient for Sprint Nextel to break even if the number of accounts remained constant?

OBJ. 4

✓ b. $720,000

EX 21-17 Cost-volume-profit chart

For the coming year, Weill Inc. anticipates fixed costs of $240,000, a unit variable cost of $80, and a unit selling price of $120. The maximum sales within the relevant range are $1,200,000.

a. Construct a cost-volume-profit chart.

b. Estimate the break-even sales (dollars) by using the cost-volume-profit chart constructed in part (a).

c. What is the main advantage of presenting the cost-volume-profit analysis in graphic form rather than equation form?

OBJ. 4

✓ b. $160,000

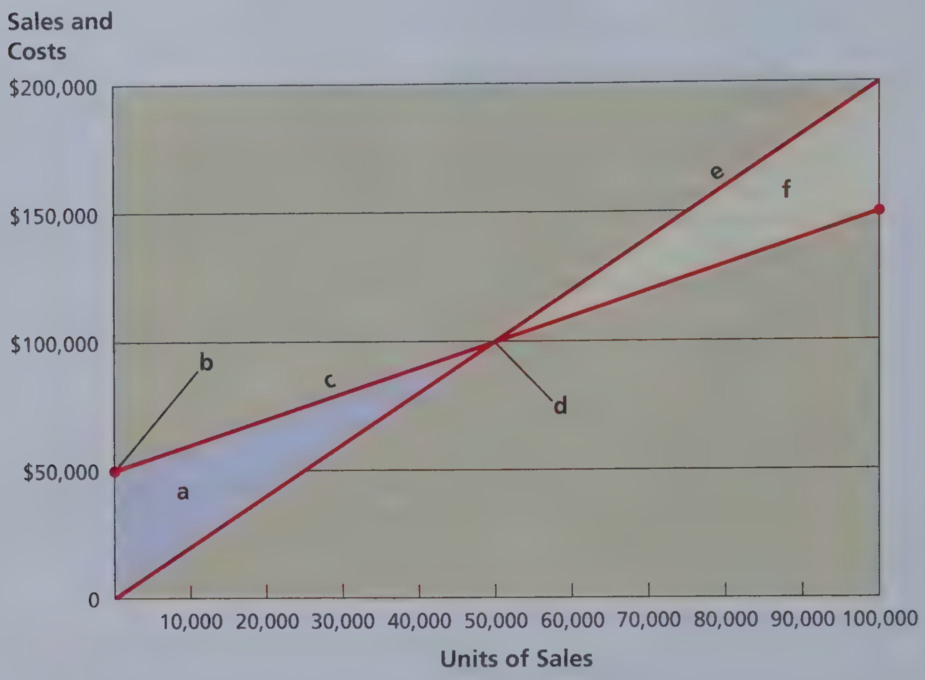
EX 21-18 Profit-volume chart

Using the data for Weill Inc. in Exercise 21-17, (a) determine the maximum possible operating loss, (b) compute the maximum possible income from operations, (c) construct a profit-volume chart, and (d) estimate the break-even sales (units) by using the profit-volume chart constructed in part (c).

OBJ. 4

EX 21-19 Break-even chart

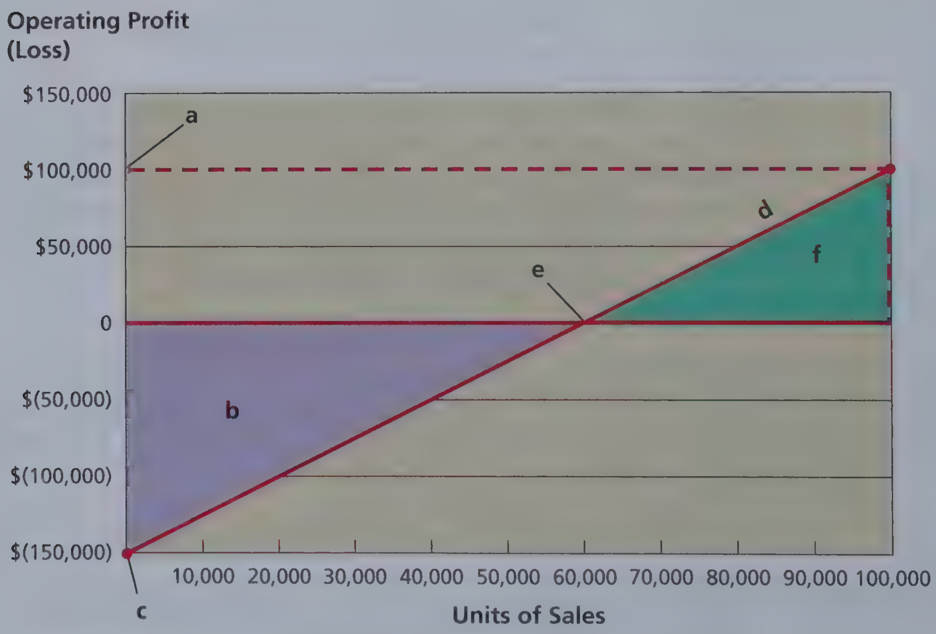
Name the following chart, and identify the items represented by the letters (a) through (f).



OBJ. 4

EX 21-20 Break-even chart

Name the following chart, and identify the items represented by the letters (a) through (f).



OBJ. 5

✔ a. 20,000 units

EX 21-21 Sales mix and break-even sales

Geitner Sports Inc. manufactures and sells two products, baseball bats and baseball gloves. The fixed costs are $460,000, and the sales mix is 60% bats and 40% gloves. The unit selling price and the unit variable cost for each product are as follows:

Products	Unit Selling Price	Unit Variable Cost
Bats	$100.00	$75.00
Gloves	80.00	60.00

a. Compute the break-even sales (units) for the overall product, E.

b. How many units of each product, baseball bats and baseball gloves, would be sold at the break-even point?

OBJ. 5

✔ a. 100 seats

EX 21-22 Break-even sales and sales mix for a service company

Sunshine Airways provides air transportation services between Philadelphia and Orlando. A single Philadelphia to Orlando round-trip flight has the following operating statistics:

Fuel	$8,200
Flight crew salaries	3,700
Airplane depreciation	3,450
Variable cost per passenger—business class	100
Variable cost per passenger—economy class	75
Round-trip ticket price—business class	600
Round-trip ticket price—economy class	190

It is assumed that the fuel, crew salaries, and airplane depreciation are fixed, regardless of the number of seats sold for the round-trip flight.

a. Compute the break-even number of seats sold on a single round-trip flight for the overall product. Assume that the overall product is 10% business class and 90% economy class tickets.

b. How many business class and economy class seats would be sold at the break-even point?

OBJ. 5

✔ a. (2) 30%

EX 21-23 Margin of safety

a. If Steele Company, with a break-even point at $378,000 of sales, has actual sales of $540,000, what is the margin of safety expressed (1) in dollars and (2) as a percentage of sales?

b. If the margin of safety for Kramer Company was 20%, fixed costs were $900,000, and variable costs were 70% of sales, what was the amount of actual sales (dollars)? (*Hint:* Determine the break-even in sales dollars first.)

OBJ. 5

EX 21-24 Break-even and margin of safety relationships

At a recent staff meeting, the management of Rocket Technologies, Inc., was considering discontinuing the Maestro line of electronic games from the product line. The chief financial analyst reported the following current monthly data for the Maestro:

Units of sales	200,000
Break-even units	225,000
Margin of safety in units	14,000

For what reason would you question the validity of these data?

OBJ. 5

✔ a. Fulp, 4.00

EX 21-25 Operating leverage

Fulp Inc. and Baucom Inc. have the following operating data:

	Fulp	Baucom
Sales	$3,000,000	$1,600,000
Variable costs	1,400,000	600,000
Contribution margin	$1,600,000	$1,000,000
Fixed costs	1,200,000	600,000
Income from operations	$ 400,000	$ 400,000

a. Compute the operating leverage for Fulp Inc. and Baucom Inc.

b. How much would income from operations increase for each company if the sales of each increased by 25%?

c. Why is there a difference in the increase in income from operations for the two companies? Explain.

Appendix

EX 21-26 Items on variable costing income statement

In the following equations, based on the variable costing income statement, identify the items designated by "X":

a. Net Sales – X = Manufacturing Margin

b. Manufacturing Margin – X = Contribution Margin

c. Contribution Margin – X = Income from Operations

✔ Contribution margin, $806,800

Appendix

EX 21-27 Variable costing income statement

On July 31, 2012, the end of the first month of operations, Toxic Company prepared the following income statement, based on the absorption costing concept:

Sales (40,000 units)		$1,850,000
Cost of goods sold:		
Cost of goods manufactured	$1,300,000	
Less ending inventory (10,000 units)	260,000	
Cost of goods sold		1,040,000
Gross profit		$ 810,000
Selling and administrative expenses		120,000
Income from operations		$ 690,000

a. Prepare a variable costing income statement, assuming that the fixed manufacturing costs were $56,000 and the variable selling and administrative expenses were $48,000.

b. Reconcile the absorption costing income from operations of $690,000 with the variable costing income from operations determined in (a).

✔ Gross profit, $139,100

Appendix

EX 21-28 Absorption costing income statement

On June 30, 2012, the end of the first month of operations, Volker Manufacturing Co. prepared the following income statement, based on the variable costing concept:

Sales (210,000 units)		$2,300,000
Variable cost of goods sold:		
Variable cost of goods manufactured (250,000 units × $10 per unit)	$2,500,000	
Less ending inventory (40,000 units × $10 per unit)	400,000	
Variable cost of goods sold		2,100,000
Manufacturing margin		$ 200,000
Variable selling and administrative expenses		44,000
Contribution margin		$ 156,000
Fixed costs:		
Fixed manufacturing costs	$ 72,500	
Fixed selling and administrative expenses	45,000	117,500
Income from operations		$ 38,500

a. Prepare an absorption costing income statement.

b. Reconcile the variable costing income from operations of $38,500 with the absorption costing income from operations determined in (a).

Problems Series A

OBJ. 1

PR 21-1A Classify costs

Olympic Clothing Co. manufactures a variety of clothing types for distribution to several major retail chains. The following costs are incurred in the production and sale of blue jeans:

a. Consulting fee of $200,000 paid to industry specialist for marketing advice

b. Brass buttons

c. Legal fees paid to attorneys in defense of the company in a patent infringement suit, $50,000 plus $87 per hour
d. Rental costs of warehouse, $5,000 per month plus $4 per square foot of storage used
e. Straight-line depreciation on sewing machines
f. Supplies
g. Insurance premiums on property, plant, and equipment, $70,000 per year plus $5 per $30,000 of insured value over $8,000,000
h. Salary of production vice president
i. Property taxes on property, plant, and equipment
j. Janitorial services, $2,200 per month
k. Shipping boxes used to ship orders
l. Electricity costs of $0.10 per kilowatt-hour
m. Hourly wages of machine operators
n. Leather for patches identifying the brand on individual pieces of apparel
o. Rent on experimental equipment, $50,000 per year
p. Salesperson's salary, $10,000 plus 2% of the total sales
q. Dye
r. Fabric
s. Thread
t. Salary of designers

Instructions

Classify the preceding costs as either fixed, variable, or mixed. Use the following tabular headings and place an "X" in the appropriate column. Identify each cost by letter in the cost column.

Cost	Fixed Cost	Variable Cost	Mixed Cost

OBJ. 2, 3

✔ 2. (b) $50.00

PR 21-2A Break-even sales under present and proposed conditions

Armstrong Company, operating at full capacity, sold 80,000 units at a price of $124 per unit during 2012. Its income statement for 2012 is as follows:

Sales		$9,920,000
Cost of goods sold		5,000,000
Gross profit		$4,920,000
Expenses:		
Selling expenses	$2,600,000	
Administrative expenses	1,220,000	
Total expenses		3,820,000
Income from operations		$1,100,000

The division of costs between fixed and variable is as follows:

	Fixed	Variable
Cost of goods sold	25%	75%
Selling expenses	40%	60%
Administrative expenses	50%	50%

Management is considering a plant expansion program that will permit an increase of $2,480,000 in yearly sales. The expansion will increase fixed costs by $272,000, but will not affect the relationship between sales and variable costs.

Instructions

1. Determine for 2012 the total fixed costs and the total variable costs.
2. Determine for 2012 (a) the unit variable cost and (b) the unit contribution margin.
3. Compute the break-even sales (units) for 2012.
4. Compute the break-even sales (units) under the proposed program.

5. Determine the amount of sales (units) that would be necessary under the proposed program to realize the $1,100,000 of income from operations that was earned in 2012.
6. Determine the maximum income from operations possible with the expanded plant.
7. If the proposal is accepted and sales remain at the 2012 level, what will the income or loss from operations be for 2013?
8. Based on the data given, would you recommend accepting the proposal? Explain.

OBJ. 3, 4

✓ 1. 10,000 units

PR 21-3A Break-even sales and cost-volume-profit chart

For the coming year, Sorkin Company anticipates a unit selling price of $80, a unit variable cost of $40, and fixed costs of $400,000.

Instructions

1. Compute the anticipated break-even sales (units).
2. Compute the sales (units) required to realize income from operations of $200,000.
3. Construct a cost-volume-profit chart, assuming maximum sales of 20,000 units within the relevant range.
4. Determine the probable income (loss) from operations if sales total 16,000 units.

OBJ. 3, 4

✓ 1. 1,400 units

PR 21-4A Break-even sales and cost-volume-profit chart

Last year, Gelbin Inc. had sales of $240,000, based on a unit selling price of $120. The variable cost per unit was $90, and fixed costs were $42,000. The maximum sales within Gelbin's relevant range are 2,500 units. Gelbin is considering a proposal to spend an additional $12,000 on billboard advertising during the current year in an attempt to increase sales and utilize unused capacity.

Instructions

1. Construct a cost-volume-profit chart indicating the break-even sales for last year. Verify your answer, using the break-even equation.
2. Using the cost-volume-profit chart prepared in part (1), determine (a) the income from operations for last year and (b) the maximum income from operations that could have been realized during the year. Verify your answers arithmetically.
3. Construct a cost-volume-profit chart indicating the break-even sales for the current year, assuming that a noncancelable contract is signed for the additional billboard advertising. No changes are expected in the unit selling price or other costs. Verify your answer, using the break-even equation.
4. Using the cost-volume-profit chart prepared in part (3), determine (a) the income from operations if sales total 2,000 units and (b) the maximum income from operations that could be realized during the year. Verify your answers arithmetically.

OBJ. 5

✓ 1. 2,100 units

PR 21-5A Sales mix and break-even sales

Data related to the expected sales of mountain bikes and road bikes for Cycle Sports Inc. for the current year, which is typical of recent years, are as follows:

Products	Unit Selling Price	Unit Variable Cost	Sales Mix
Mountain bikes	$800	$475	60%
Road bikes	700	325	40%

The estimated fixed costs for the current year are $724,500.

Instructions

1. Determine the estimated units of sales of the overall (total) product necessary to reach the break-even point for the current year.
2. Based on the break-even sales (units) in part (1), determine the unit sales of both mountain bikes and road bikes for the current year.
3. Assume that the sales mix was 50% mountain bikes and 50% road bikes. Compare the break-even point with that in part (1). Why is it so different?

OBJ. 2, 3, 4, 5

✓ 2. 62.5%

PR 21-6A Contribution margin, break-even sales, cost-volume-profit chart, margin of safety, and operating leverage

Blythe Industries Inc. expects to maintain the same inventories at the end of 2012 as at the beginning of the year. The total of all production costs for the year is therefore assumed to be equal to the cost of goods sold. With this in mind, the various department heads were asked to submit estimates of the costs for their departments during 2012. A summary report of these estimates is as follows:

	Estimated Fixed Cost	Estimated Variable Cost (per unit sold)
Production costs:		
Direct materials	—	$30
Direct labor	—	20
Factory overhead	$340,000	11
Selling expenses:		
Sales salaries and commissions	80,000	5
Advertising	32,000	—
Travel	8,000	—
Miscellaneous selling expense	7,600	5
Administrative expenses:		
Office and officers' salaries	120,000	—
Supplies	8,000	2
Miscellaneous administrative expense	4,400	2
Total	$600,000	$75

It is expected that 8,000 units will be sold at a price of $200 a unit. Maximum sales within the relevant range are 9,000 units.

Instructions

1. Prepare an estimated income statement for 2012.
2. What is the expected contribution margin ratio?
3. Determine the break-even sales in units and dollars.
4. Construct a cost-volume-profit chart indicating the break-even sales.
5. What is the expected margin of safety in dollars and as a percentage of sales?
6. Determine the operating leverage.

Problems Series B

OBJ. 1

PR 21-1B Classify costs

Hand-Made Furniture Company manufactures sofas for distribution to several major retail chains. The following costs are incurred in the production and sale of sofas:

a. Wood for framing the sofas
b. Salary of production vice president
c. Rent on experimental equipment, $50 for every sofa produced
d. Rental costs of warehouse, $30,000 per month
e. Insurance premiums on property, plant, and equipment, $25,000 per year plus $25 per $25,000 of insured value over $16,000,000
f. Consulting fee of $120,000 paid to efficiency specialists
g. Salesperson's salary, $80,000 plus 4% of the selling price of each sofa sold
h. Janitorial supplies, $25 for each sofa produced
i. Employer's FICA taxes on controller's salary of $180,000
j. Fabric for sofa coverings
k. Hourly wages of sewing machine operators
l. Sewing supplies

m. Salary of designers
n. Foam rubber for cushion fillings
o. Electricity costs of $0.13 per kilowatt-hour
p. Springs
q. Property taxes on property, plant, and equipment
r. Straight-line depreciation on factory equipment
s. Cartons used to ship sofas
t. Legal fees paid to attorneys in defense of the company in a patent infringement suit, $25,000 plus $160 per hour

Instructions

Classify the preceding costs as either fixed, variable, or mixed. Use the following tabular headings and place an "X" in the appropriate column. Identify each cost by letter in the cost column.

Cost	Fixed Cost	Variable Cost	Mixed Cost

OBJ. 2, 3

✔ 3. 13,000 units

PR 21-2B Break-even sales under present and proposed conditions

Colt Industries Inc., operating at full capacity, sold 30,000 units at a price of $56 per unit during 2012. Its income statement for 2012 is as follows:

Sales		$1,680,000
Cost of goods sold		740,000
Gross profit		$ 940,000
Expenses:		
Selling expenses	$260,000	
Administrative expenses	136,000	
Total expenses		396,000
Income from operations		$ 544,000

The division of costs between fixed and variable is as follows:

	Fixed	Variable
Cost of goods sold	40%	60%
Selling expenses	20%	80%
Administrative expenses	50%	50%

Management is considering a plant expansion program that will permit an increase of $1,120,000 in yearly sales. The expansion will increase fixed costs by $400,000, but will not affect the relationship between sales and variable costs.

Instructions

1. Determine for 2012 the total fixed costs and the total variable costs.
2. Determine for 2012 (a) the unit variable cost and (b) the unit contribution margin.
3. Compute the break-even sales (units) for 2012.
4. Compute the break-even sales (units) under the proposed program.
5. Determine the amount of sales (units) that would be necessary under the proposed program to realize the $544,000 of income from operations that was earned in 2012.
6. Determine the maximum income from operations possible with the expanded plant.
7. If the proposal is accepted and sales remain at the 2012 level, what will the income or loss from operations be for 2013?
8. Based on the data given, would you recommend accepting the proposal? Explain.

OBJ. 3, 4

✓ 1. 16,000 units

PR 21-3B Break-even sales and cost-volume-profit chart

For the coming year, Viking Products Inc. anticipates a unit selling price of $125, a unit variable cost of $50, and fixed costs of $1,200,000.

Instructions

1. Compute the anticipated break-even sales (units).
2. Compute the sales (units) required to realize income from operations of $300,000.
3. Construct a cost-volume-profit chart, assuming maximum sales of 40,000 units within the relevant range.
4. Determine the probable income (loss) from operations if sales total 28,000 units.

OBJ. 3, 4

✓ 1. 3,600 units

PR 21-4B Break-even sales and cost-volume-profit chart

Last year, O'Meara Co. had sales of $2,000,000, based on a unit selling price of $500. The variable cost per unit was $300, and fixed costs were $720,000. The maximum sales within O'Meara's relevant range are 5,000 units. O'Meara is considering a proposal to spend an additional $50,000 on billboard advertising during the current year in an attempt to increase sales and utilize unused capacity.

Instructions

1. Construct a cost-volume-profit chart indicating the break-even sales for last year. Verify your answer, using the break-even equation.
2. Using the cost-volume-profit chart prepared in part (1), determine (a) the income from operations for last year and (b) the maximum income from operations that could have been realized during the year. Verify your answers arithmetically.
3. Construct a cost-volume-profit chart indicating the break-even sales for the current year, assuming that a noncancelable contract is signed for the additional billboard advertising. No changes are expected in the selling price or other costs. Verify your answer, using the break-even equation.
4. Using the cost-volume-profit chart prepared in part (3), determine (a) the income from operations if sales total 4,000 units and (b) the maximum income from operations that could be realized during the year. Verify your answers arithmetically.

OBJ. 5

✓ 1. 4,125 units

PR 21-5B Sales mix and break-even sales

Data related to the expected sales of two types of frozen pizzas for Delicious Frozen Foods Inc. for the current year, which is typical of recent years, are as follows:

Products	Unit Selling Price	Unit Variable Cost	Sales Mix
12" Pizza	$ 8.00	$2.00	60%
16" Pizza	10.00	3.00	40%

The estimated fixed costs for the current year are $26,400.

Instructions

1. Determine the estimated units of sales of the overall product necessary to reach the break-even point for the current year.
2. Based on the break-even sales (units) in part (1), determine the unit sales of both the 12" pizza and 16" pizza for the current year.
3. Assume that the sales mix was 40% 12" pizza and 60% 16" pizza. Compare the break-even point with that in part (1). Why is it so different?

OBJ. 2, 3, 4, 5

✓ 3. 30,000

PR 21-6B Contribution margin, break-even sales, cost-volume-profit chart, margin of safety, and operating leverage

Baker Co. expects to maintain the same inventories at the end of 2012 as at the beginning of the year. The total of all production costs for the year is therefore assumed to be equal to the cost of goods sold. With this in mind, the various department heads were

asked to submit estimates of the costs for their departments during 2012. A summary report of these estimates is as follows:

	Estimated Fixed Cost	Estimated Variable Cost (per unit sold)
Production costs:		
Direct materials	—	$30.00
Direct labor	—	15.00
Factory overhead	$240,000	5.00
Selling expenses:		
Sales salaries and commissions	43,000	3.00
Advertising	12,000	—
Travel	4,200	—
Miscellaneous selling expense	2,300	2.50
Administrative expenses:		
Office and officers' salaries	110,000	—
Supplies	16,000	2.50
Miscellaneous administrative expense	22,500	2.00
Total	$450,000	$60.00

It is expected that 40,000 units will be sold at a price of $75 a unit. Maximum sales within the relevant range are 45,000 units.

Instructions

1. Prepare an estimated income statement for 2012.
2. What is the expected contribution margin ratio?
3. Determine the break-even sales in units and dollars.
4. Construct a cost-volume-profit chart indicating the break-even sales.
5. What is the expected margin of safety in dollars and as a percentage of sales?
6. Determine the operating leverage.

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA 21-1 High-low method

Bi-Rize, Inc., incurred the following production volumes and costs for the last six months of the current year:

	Production Unit	Total Cost
July	3,000	$111,700
August	2,980	110,600
September	3,250	118,250
October	2,520	100,200
November	2,260	93,500
December	3,110	114,800

a. Open the Excel file *SA21-1_2e*.

b. Prepare a spreadsheet to determine the variable cost per unit and total fixed cost using the high-low method. Use the VLOOKUP function to match the total cost to the minimum and maximum production in computing the variable cost per unit.

c. When you have completed the high-low analysis, perform a "save as," replacing the entire file name with the following:

SA21-1_2e [your first name initial]_[your last name]

SA 21-2 High-low method

Jeffries Industrial Products Company prepared production and total cost information for their Moline plant for seven months as follows:

	Production Unit	Total Cost
April	450	$32,485
May	525	35,100
June	590	36,700
July	680	38,650
August	820	43,240
September	910	45,825
October	750	41,710

a. Open the Excel file *SA21-2_2e*.

b. Prepare a spreadsheet to determine the variable cost per unit and total fixed cost using the high-low method. Use the VLOOKUP function to match the total cost to the minimum and maximum production in computing the variable cost per unit.

c. When you have completed the high-low analysis, perform a "save as," replacing the entire file name with the following:

SA21-2_2e [your first name initial]_[your last name]

SA 21-3 High-low method

Barnstable Company prepared weekly production and total cost information for the Assembly Department for 12 weeks as follows:

	Production Unit	Total Cost
Week 1	1,930	$46,790
Week 2	1,240	33,710
Week 3	1,760	42,490
Week 4	980	28,740
Week 5	1,130	31,740
Week 6	1,520	39,400
Week 7	1,690	42,350
Week 8	1,420	37,240
Week 9	1,550	38,540
Week 10	1,300	34,990
Week 11	1,750	42,870
Week 12	1,890	46,320

a. Open the Excel file *SA21-3_2e*.

b. Prepare a spreadsheet to determine the variable cost per unit and total fixed cost using the high-low method. Use the VLOOKUP function to match the total cost to the minimum and maximum production in computing the variable cost per unit.

c. When you have completed the high-low analysis, perform a "save as," replacing the entire file name with the following:

SA21-3_2e [your first name initial]_[your last name]

ot/Alamy

CHAPTER 22

Budgeting

The North Face

You may have financial goals for your life. To achieve these goals, it is necessary to plan for future expenses. For example, you may consider taking a part-time job to save money for school expenses for the coming school year. How much money would you need to earn and save in order to pay these expenses? One way to find an answer to this question would be to prepare a budget. A budget would show an estimate of your expenses associated with school, such as tuition, fees, and books. In addition, you would have expenses for day-to-day living, such as rent, food, and clothing. You might also have expenses for travel and entertainment. Once the school year begins, you can use the budget as a tool for guiding your spending priorities during the year.

The budget is used in businesses in much the same way as it can be used in personal life. For example, **The North Face** sponsors mountain climbing expeditions throughout the year for professional and amateur climbers. These events require budgeting to plan trip expenses, much like you might use a budget to plan a vacation.

Budgeting is also used by The North Face to plan the manufacturing costs associated with its outdoor clothing and equipment production. For example, budgets would be used to determine the number of coats to be produced, number of people to be employed, and amount of material to be purchased. The budget provides the company with a "game plan" for the year. In this chapter, you will see how budgets can be used for financial planning and control.

Learning Objectives

After studying this chapter, you should be able to:

	Example Exercises	*Page*
1 Describe budgeting, its objectives, and its impact on human behavior.		
Nature and Objectives of Budgeting		
Objectives of Budgeting		
Human Behavior and Budgeting		
2 Describe the basic elements of the budget process, the two major types of budgeting, and the use of computers in budgeting.		
Budgeting Systems		
Static Budget		
Flexible Budget	EE 22-1	1022
Computerized Budgeting Systems		
3 Describe the master budget for a manufacturing company.		
Master Budget		
4 Prepare the basic income statement budgets for a manufacturing company.		
Income Statement Budgets		
Sales Budget		
Production Budget	EE 22-2	1026
Direct Materials Purchases Budget	EE 22-3	1028
Direct Labor Cost Budget	EE 22-4	1029
Factory Overhead Cost Budget		
Cost of Goods Sold Budget	EE 22-5	1031
Selling and Administrative Expenses Budget		
Budgeted Income Statement		
5 Prepare balance sheet budgets for a manufacturing company.		
Balance Sheet Budgets		
Cash Budget	EE 22-6	1035
Capital Expenditures Budget		
Budgeted Balance Sheet		

At a Glance 22 Page 1039

1 Describe budgeting, its objectives, and its impact on human behavior.

Nature and Objectives of Budgeting

Budgets play an important role for organizations of all sizes and forms. For example, budgets are used in managing the operations of government agencies, churches, hospitals, and other nonprofit organizations. Individuals and families also use budgeting in managing their financial affairs. This chapter describes and illustrates budgeting for a manufacturing company.

The chart below shows the estimated portion of your total monthly income that should be budgeted for various living expenses according to the Consumer Credit Counseling Service.

Objectives of Budgeting

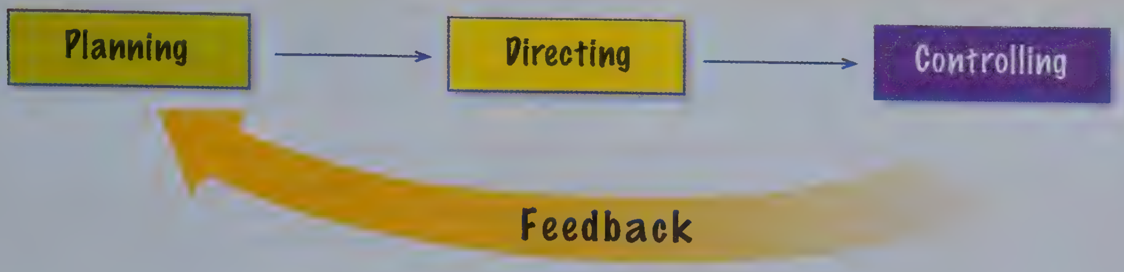
Budgeting involves (1) establishing specific goals, (2) executing plans to achieve the goals, and (3) periodically comparing actual results with the goals. In doing so, budgeting affects the following managerial functions:

1. Planning
2. Directing
3. Controlling

The relationships of these activities are illustrated in Exhibit 1.

Planning involves setting goals to guide decisions and help motivate employees. The planning process often identifies where operations can be improved.

EXHIBIT 1 **Planning, Directing, and Controlling**



Directing involves decisions and actions to achieve budgeted goals. A budgetary unit of a company is called a **responsibility center**. Each responsibility center is led by a manager who has the authority and responsibility for achieving the center's budgeted goals.

Controlling involves comparing actual performance against the budgeted goals. Such comparisons provide feedback to managers and employees about their performance. If necessary, responsibility centers can use such feedback to adjust their activities in the future.

Human Behavior and Budgeting

Human behavior problems can arise in the budgeting process in the following situations:

1. Budgeted goals are set too tight, which are very hard or impossible to achieve
2. Budgeted goals are set too loose, which are very easy to achieve
3. Budgeted goals conflict with the objectives of the company and employees

These behavior problems are illustrated in Exhibit 2.

EXHIBIT 2

Human Behavior Problems in Budgeting

Setting Budget Goals Too Tightly Employees and managers may become discouraged if budgeted goals are set too high. That is, if budgeted goals are viewed as unrealistic or unachievable, the budget may have a negative effect on the ability of the company to achieve its goals.

Reasonable, attainable goals are more likely to motivate employees and managers. For this reason, it is important for employees and managers to be involved in the budgeting process. Involving employees in the budgeting process provides them with a sense of control and, thus, more of a commitment in meeting budgeted goals.

Setting Budget Goals Too Loosely Although it is desirable to establish attainable goals, it is undesirable to plan budget goals that are too easy. Such budget "padding" is termed **budgetary slack**. Managers may plan slack in their budgets to provide a "cushion" for unexpected events. However, if the budget is not spent by the end of the period, senior management may determine that the responsibility center should have a reduced budget. This may cause responsibility managers to spend budgetary resources at the end of the period rather than risk losing them. This can be wasteful.

Setting Conflicting Budget Goals **Goal conflict** occurs when the employees' or managers' self-interest differs from the company's objectives or goals. Goal conflict may also occur among responsibility centers such as departments. To illustrate, assume that the sales department manager is given an increased sales goal and as a result accepts customers who are poor credit risks. This, in turn, causes bad debt expense to increase and profitability to decline.

Integrity, Objectivity, and Ethics in Business

BUDGET GAMES

The budgeting system is designed to plan and control a business. However, it is common for the budget to be "gamed" by its participants. For example, managers may pad their budgets with excess resources. In this way, the managers have additional resources for unexpected events during the period. If the budget is being used to establish the incentive plan, then sales managers have incentives to understate the sales potential of a territory to ensure hitting their quotas. Other times, managers engage in "land grabbing," which occurs when they overstate the sales potential of a territory to guarantee access to resources. If managers believe that unspent resources will not roll over to future periods, then they may be encouraged to "spend it or lose it," causing wasteful expenditures. These types of problems can be partially overcome by separating the budget into planning and incentive components. This is why many organizations have two budget processes, one for resource planning and another, more challenging budget, for motivating managers.

OBJ 2 Describe the basic elements of the budget process, the two major types of budgeting, and the use of computers in budgeting.

Budgeting Systems

Budgeting systems vary among companies and industries. For example, the budget system used by Ford Motor Company differs from that used by Delta Air Lines. However, the basic budgeting concepts discussed in this section apply to all types of businesses and organizations.

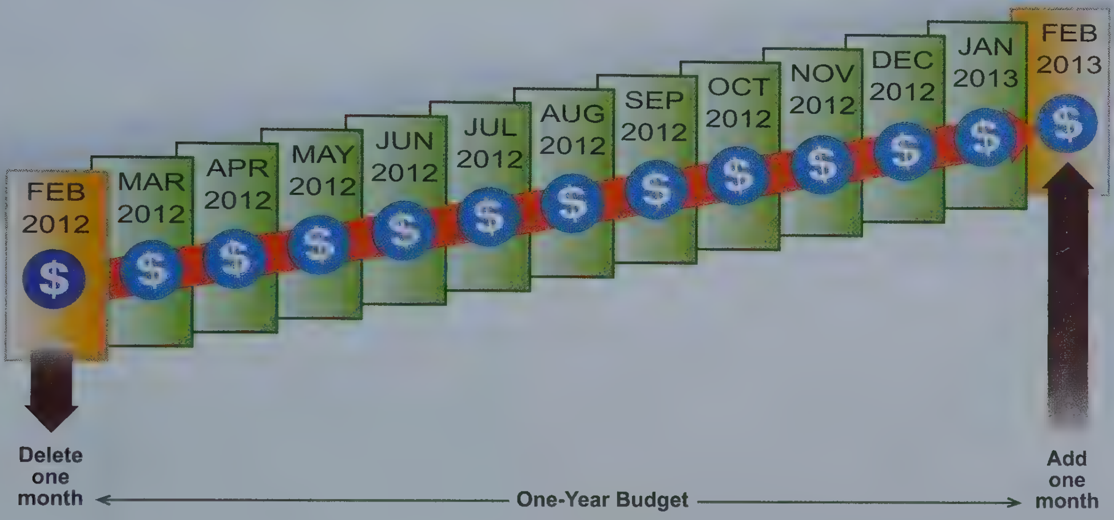
The budgetary period for operating activities normally includes the fiscal year of a company. A year is short enough that future operations can be estimated fairly accurately, yet long enough that the future can be viewed in a broad context. However, for control purposes, annual budgets are usually subdivided into shorter time periods, such as quarters of the year, months, or weeks.

A variation of fiscal-year budgeting, called **continuous budgeting**, maintains a 12-month projection into the future. The 12-month budget is continually revised by replacing the data for the month just ended with the budget data for the same month in the next year. A continuous budget is illustrated in Exhibit 3.

Developing an annual budget usually begins several months prior to the end of the current year. This responsibility is normally assigned to a budget committee. Such a committee often consists of the budget director, the controller, the treasurer, the production manager, and the sales manager. The budget process is monitored and summarized by the Accounting Department, which reports to the committee.

There are several methods of developing budget estimates. One method, termed **zero-based budgeting**, requires managers to estimate sales, production, and other operating data as though operations are being started for the first time. This approach has the benefit of taking a fresh view of operations each year. A more common approach is to start with last year's budget and revise it for actual results and expected changes for the coming year. Two major budgets using this approach are the static budget and the flexible budget.

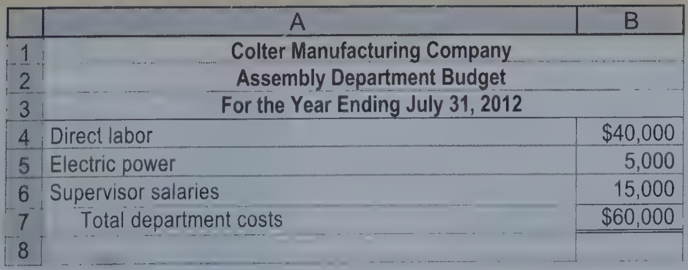
EXHIBIT 3 **Continuous Budgeting**



Static Budget

A **static budget** shows the expected results of a responsibility center for only one activity level. Once the budget has been determined, it is not changed, even if the activity changes. Static budgeting is used by many service companies, governmental entities, and for some functions of manufacturing companies, such as purchasing, engineering, and accounting.

To illustrate, the static budget for the Assembly Department of Colter Manufacturing Company is shown in Exhibit 4.



	A	B
1	Colter Manufacturing Company	
2	Assembly Department Budget	
3	For the Year Ending July 31, 2012	
4	Direct labor	$40,000
5	Electric power	5,000
6	Supervisor salaries	15,000
7	Total department costs	$60,000
8		

EXHIBIT 4

Static Budget

A disadvantage of static budgets is that they do not adjust for changes in activity levels. For example, assume that the Assembly Department of Colter Manufacturing spent $70,800 for the year ended July 31, 2012. Thus, the Assembly Department spent

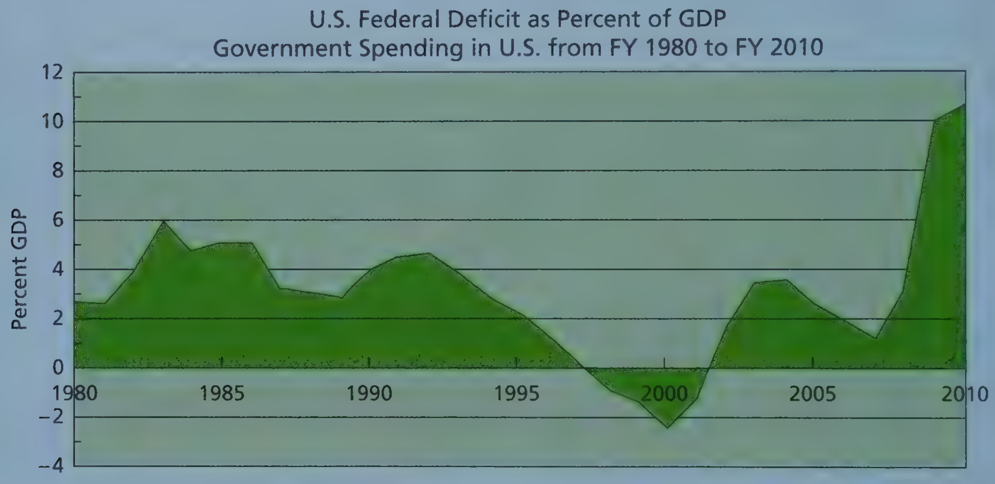
$10,800 ($70,800 – $60,000), or 18% ($10,800/$60,000) more than budgeted. Is this good news or bad news?

The first reaction is that this is bad news and the Assembly Department was inefficient in spending more than budgeted. However, assume that the Assembly Department's budget was based on plans to assemble 8,000 units during the year. If 10,000 units were actually assembled, the additional $10,800 spent in excess of budget might be good news. That is, the Assembly Department assembled 25% (2,000 units/8,000 units) more than planned for only 18% more cost.

Business Connection

U.S. FEDERAL BUDGET DEFICIT

Budgeting is an important tool used by municipalities, states, and federal governments to control expenditures. Many states are required by law to have balanced budgets. That is, the amount of money received from taxes and other revenues must be greater than or equal to the planned expenditures for state services. The U.S. federal government, however, may run a budget deficit. A *deficit* is the excess of expenditures over revenues. The deficit is paid for by issuing government debt. The amount of deficit a nation can sustain is a function of the size of its economy. Thus, the deficit is often measured as a percentage of gross domestic product (GDP), a measure of the nation's output of goods and services. The deficit as a percent of GDP for the United States over the last several decades is as follows:



As can be seen, the budget deficit has jumped above 10% of GDP in response to the recession that began in 2008. While a nation may increase a deficit to above 10% of GDP temporarily, keeping a budget deficit above 10% for a long period of time typically slows a nation's economic growth.

Source: Carmen Reinhart and Kenneth Rogoff, *This Time Its Different: Eight Centuries of Financial Folly* (Princeton University Press, 2009).

Flexible Budget

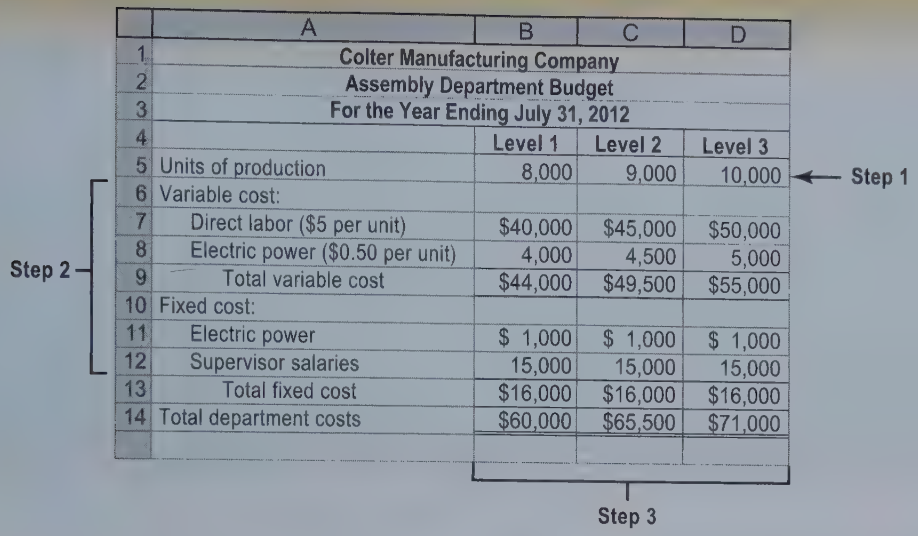
Note:
Flexible budgets show expected results for several activity levels.

Unlike static budgets, **flexible budgets** show the expected results of a responsibility center for several activity levels. A flexible budget is, in effect, a series of static budgets for different levels of activity.

To illustrate, a flexible budget for the Assembly Department of Colter Manufacturing Company is shown in Exhibit 5.

EXHIBIT 5

Flexible Budget



	A	B	C	D
1	Colter Manufacturing Company			
2	Assembly Department Budget			
3	For the Year Ending July 31, 2012			
4		Level 1	Level 2	Level 3
5	Units of production	8,000	9,000	10,000
6	Variable cost:			
7	Direct labor ($5 per unit)	$40,000	$45,000	$50,000
8	Electric power ($0.50 per unit)	4,000	4,500	5,000
9	Total variable cost	$44,000	$49,500	$55,000
10	Fixed cost:			
11	Electric power	$ 1,000	$ 1,000	$ 1,000
12	Supervisor salaries	15,000	15,000	15,000
13	Total fixed cost	$16,000	$16,000	$16,000
14	Total department costs	$60,000	$65,500	$71,000

A flexible budget is constructed as follows:

Step 1. Identify the relevant activity levels. The relevant levels of activity could be expressed in units, machine hours, direct labor hours, or some other activity base. In Exhibit 5, the levels of activity are 8,000, 9,000, and 10,000 units of production.

Step 2. Identify the fixed and variable cost components of the costs being budgeted. In Exhibit 5, the electric power cost is separated into its fixed cost ($1,000 per year) and variable cost ($0.50 per unit). The direct labor is a variable cost, and the supervisor salaries are all fixed costs.

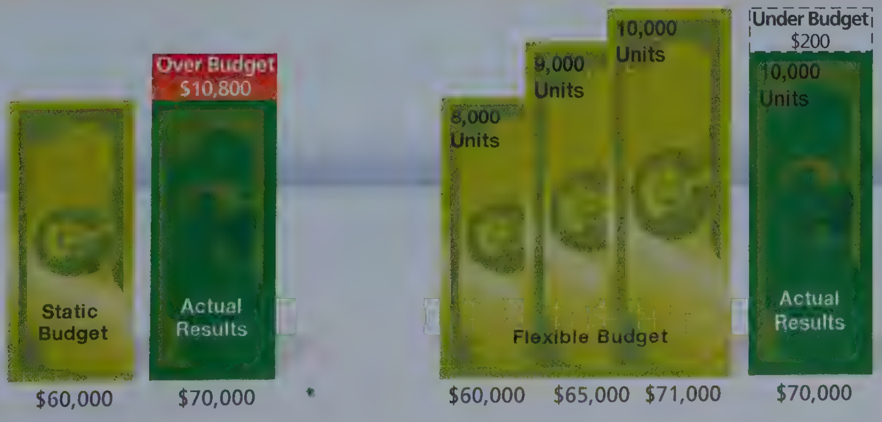
Step 3. Prepare the budget for each activity level by multiplying the variable cost per unit by the activity level and then adding the monthly fixed cost.

With a flexible budget, actual costs can be compared to the budgeted costs for actual activity. To illustrate, assume that the Assembly Department spent $70,800 to produce 10,000 units. Exhibit 5 indicates that the Assembly Department was *under* budget by $200 ($71,000 – $70,800).

Under the static budget in Exhibit 4, the Assembly Department was $10,800 *over* budget. This comparison is illustrated in Exhibit 6.

The flexible budget for the Assembly Department is much more accurate and useful than the static budget. This is because the flexible budget adjusts for changes in the level of activity.

EXHIBIT 6 **Static and Flexible Budgets**



Example Exercise 22-1 Flexible Budgeting

OBJ 2

At the beginning of the period, the Assembly Department budgeted direct labor of $45,000 and supervisor salaries of $30,000 for 5,000 hours of production. The department actually completed 6,000 hours of production. Determine the budget for the department, assuming that it uses flexible budgeting.

Follow My Example 22-1

Variable cost:	
Direct labor (6,000 hours × $9* per hour)	$54,000
Fixed cost:	
Supervisor salaries	30,000
Total department costs	$84,000

*$45,000/5,000 hours

Practice Exercises: **PE 22-1A, PE 22-1B**

Computerized Budgeting Systems

In developing budgets, companies use a variety of computerized approaches. Two of the most popular computerized approaches use:

1. Spreadsheet software such as Microsoft Excel
2. Integrated budget and planning (B&P) software systems

Spreadsheets ease budget preparation by summarizing budget information in linked spreadsheets across the organization. In addition, the impact of proposed changes in various assumptions or operating alternatives can be analyzed on a speadsheet.

B&P software systems use the Web (Intranet) to link thousands of employees together during the budget process. Employees can input budget data onto Web pages that are integrated and summarized throughout the company. In this way, a company can quickly and consistently integrate top-level strategies and goals to lower-level operational goals.

Fujitsu, a Japanese technology company, used B&P to reduce its budgeting process from 6–8 weeks down to 10–15 days.

Business Connection

BUILD VERSUS HARVEST

Budgeting systems are not "one size fits all" solutions but must adapt to the underlying business conditions. For example, a business can adopt either a build strategy or a harvest strategy. A *build* strategy is one where the business is designing, launching, and growing new products and markets. Build strategies often require short-term profit sacrifice in order to grow market share. Apple, Inc.'s iPad® is an example of a product managed under a build strategy. A *harvest* strategy is often employed for business units with mature products enjoying high market share in low-growth industries. H.J. Heinz Company's Ketchup® and P&G's *Ivory* soap are examples of such products. A build strategy often has greater uncertainty, unpredictability, and change than a harvest strategy. The difference between these strategies implies different budgeting approaches.

The build strategy should employ a budget approach that is flexible to the uncertainty of the business. Thus, budgets should adapt to changing conditions by allowing periodic revisions and flexible targets. The budget serves as a short-term planning tool to guide management in executing an uncertain and evolving product market strategy.

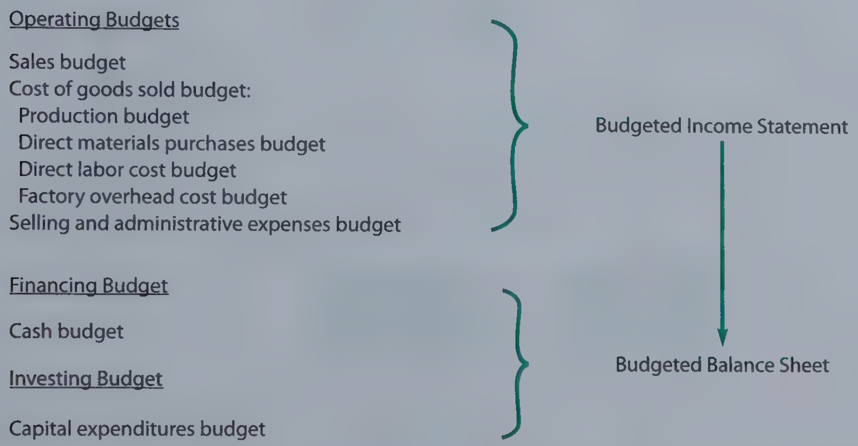
In a harvest strategy, the business is often much more stable and is managed to maximize profitability and cash flow. Because cost control is much more important in this strategy, the budget is used to restrict the actions of managers.

Master Budget

OBJ. 3 Describe the master budget for a manufacturing company.

The **master budget** is an integrated set of operating, investing, and financing budgets for a period of time. Most companies prepare the master budget on a yearly basis.

For a manufacturing company, the master budget consists of the following integrated budgets:



As shown above, the master budget is an integrated set of budgets that tie together a company's operating, financing, and investing activities into an integrated plan for the coming year.

The master budget begins with preparing the operating budgets, which form the budgeted income statement. The income statement budgets are normally prepared in the following order beginning with the sales budget:

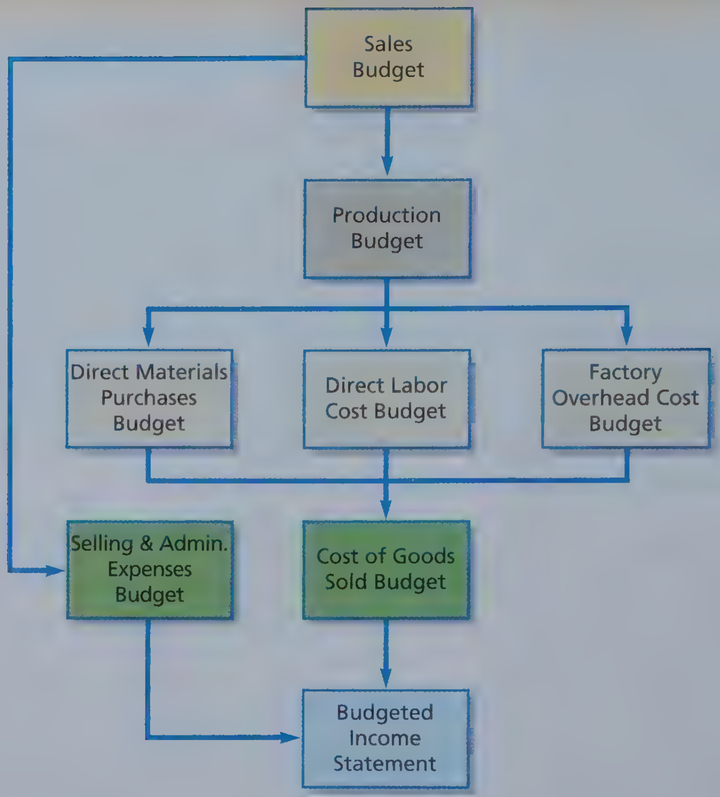
1. Sales budget
2. Production budget
3. Direct materials purchases budget
4. Direct labor cost budget
5. Factory overhead cost budget
6. Cost of goods sold budget
7. Selling and administrative expenses budget
8. Budgeted income statement

After the budgeted income statement is prepared, the budgeted balance sheet is prepared. Two major budgets comprising the budgeted balance sheet are the cash budget and the capital expenditures budget.

Exhibit 7 shows the relationships among the income statement budgets.

EXHIBIT 7

Income Statement Budgets



OBJ. 4 Prepare the basic income statement budgets for a manufacturing company.

Income Statement Budgets

The integrated budgets that support the income statement budget are described and illustrated in this section. Elite Accessories Inc., a small manufacturing company, is used as a basis for illustration.

Sales Budget

The **sales budget** begins by estimating the quantity of sales. As a starting point, the prior year's sales quantities are often used. These sales quantities are then revised for such factors as the following:

1. Backlog of unfilled sales orders from the prior period
2. Planned advertising and promotion
3. Productive capacity
4. Projected pricing changes
5. Findings of market research studies
6. Expected industry and general economic conditions

Once sales quantities are estimated, the expected sales revenue can be determined by multiplying the volume by the expected unit sales price.

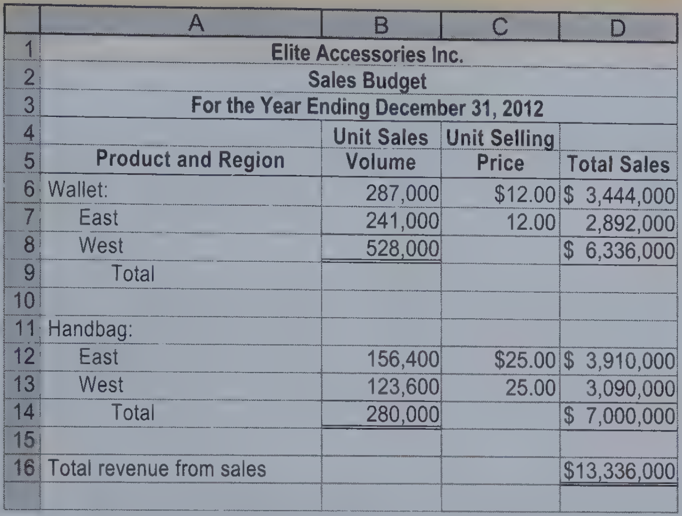
To illustrate, Elite Accessories Inc. manufactures wallets and handbags that are sold in two regions, the East and West regions. Elite Accessories estimates the following sales quantities and prices for 2012:

	East Region	West Region	Unit Selling Price
Wallets	287,000	241,000	$12
Handbags	156,400	123,600	25

Exhibit 8 illustrates the sales budget for Elite Accessories based on the preceding data.

EXHIBIT 8

Sales Budget



	A	B	C	D
1	Elite Accessories Inc.			
2	Sales Budget			
3	For the Year Ending December 31, 2012			
4		Unit Sales	Unit Selling	
5	Product and Region	Volume	Price	Total Sales
6	Wallet:	287,000	$12.00	$ 3,444,000
7	East	241,000	12.00	2,892,000
8	West	528,000		$ 6,336,000
9	Total			
10				
11	Handbag:			
12	East	156,400	$25.00	$ 3,910,000
13	West	123,600	25.00	3,090,000
14	Total	280,000		$ 7,000,000
15				
16	Total revenue from sales			$13,336,000

Production Budget

The production budget should be integrated with the sales budget to ensure that production and sales are kept in balance during the year. The **production budget** estimates the number of units to be manufactured to meet budgeted sales and desired inventory levels.

The budgeted units to be produced are determined as follows:

Expected units to be sold	XXX units
Plus desired units in ending inventory	+ XXX
Less estimated units in beginning inventory	– XXX
Total units to be produced	XXX units

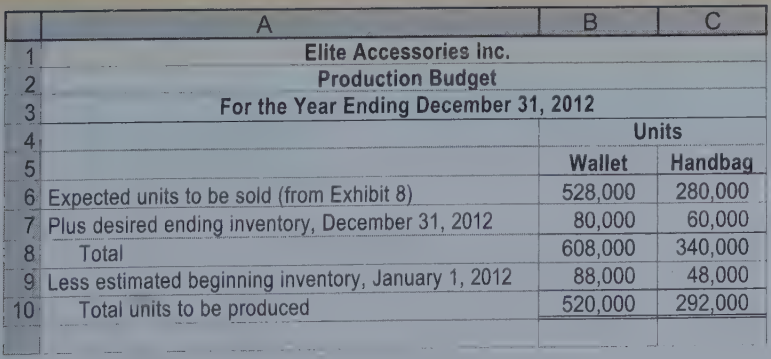
Elite Accessories Inc. expects the following inventories of wallets and handbags:

	Estimated Inventory January 1, 2012	Desired Inventory December 31, 2012
Wallets	88,000	80,000
Handbags	48,000	60,000

Exhibit 9 illustrates the production budget for Elite Accessories Inc.

EXHIBIT 9

Production Budget



	A	B	C
1	Elite Accessories Inc.		
2	Production Budget		
3	For the Year Ending December 31, 2012		
4		Units	
5		Wallet	Handbag
6	Expected units to be sold (from Exhibit 8)	528,000	280,000
7	Plus desired ending inventory, December 31, 2012	80,000	60,000
8	Total	608,000	340,000
9	Less estimated beginning inventory, January 1, 2012	88,000	48,000
10	Total units to be produced	520,000	292,000

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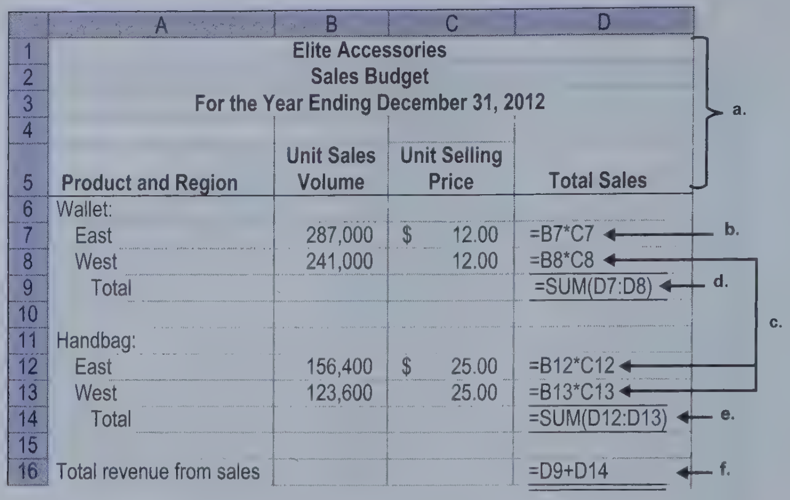
A spreadsheet can be used to create a sales budget, as illustrated below:



	A	B	C	D
1	Elite Accessories			
2	Sales Budget			
3	For the Year Ending December 31, 2012			
4				
5	Product and Region	Unit Sales Volume	Unit Selling Price	Total Sales
6	Wallet:			
7	East	287,000	$ 12.00	=B7*C7
8	West	241,000	12.00	=B8*C8
9	Total			=SUM(D7:D8)
10				
11	Handbag:			
12	East	156,400	$ 25.00	=B12*C12
13	West	123,600	25.00	=B13*C13
14	Total			=SUM(D12:D13)
15				
16	Total revenue from sales			=D9+D14

a. Format the budget in a spreadsheet, centering the heading in merged cells over four columns. Enter row text and data in the first three columns as shown.
b. Enter in cell D7 the formula for the total sales for the first line of data (East region, wallet), =B7*C7.
c. Copy cell D7 to D8, D12, and D13. Thus, the product of the units sales volume and unit selling price are now calculated for each region.
d. Enter in D9 the sum of D7 and D8, =SUM(D7:D8).
e. Copy D9 to D14.
f. Enter in D16 the formula to sum the two region subtotals, =D9+D14.

The remaining budgets illustrated in this chapter can also be constructed on a spreadsheet using appropriate formulas and cell references. The complete master budget is shown on a spreadsheet at the end of this chapter illustrating selected formula entries.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Example Exercise 22-2 Production Budget

OBJ 4

Landon Awards Co. projected sales of 45,000 brass plaques for 2012. The estimated January 1, 2012, inventory is 3,000 units, and the desired December 31, 2012, inventory is 5,000 units. What is the budgeted production (in units) for 2012?

Follow My Example 22-2

Expected units to be sold	45,000
Plus desired ending inventory, December 31, 2012	5,000
Total	50,000
Less estimated beginning inventory, January 1, 2012	3,000
Total units to be produced	47,000

Practice Exercises: **PE 22-2A, PE 22-2B**

Direct Materials Purchases Budget

The direct materials purchases budget should be integrated with the production budget to ensure that production is not interrupted during the year. The **direct materials purchases budget** estimates the quantities of direct materials to be purchased to support budgeted production and desired inventory levels.

The direct materials to be purchased are determined as follows:

Materials required for production	XXX
Plus desired ending materials inventory	+ XXX
Less estimated beginning materials inventory	– XXX
Direct materials to be purchased	XXX

Elite Accessories Inc. uses leather and lining in producing wallets and handbags. The quantity of direct materials expected to be used for each unit of product is as follows:

Wallet	Handbag
Leather: 0.30 sq. yd. per unit	Leather: 1.25 sq. yds. per unit
Lining: 0.10 sq. yd. per unit	Lining: 0.50 sq. yd. per unit

Elite Accessories Inc. expects the following direct materials inventories of leather and lining:

	Estimated Direct Materials Inventory January 1, 2012	Desired Direct Materials Inventory December 31, 2012
Leather	18,000 sq. yds.	20,000 sq. yds.
Lining	15,000 sq. yds.	12,000 sq. yds.

The estimated price per square yard of leather and lining during 2012 is shown below.

	Price per Square Yard
Leather	$4.50
Lining	1.20

Exhibit 10 illustrates the direct materials purchases budget for Elite Accessories Inc.

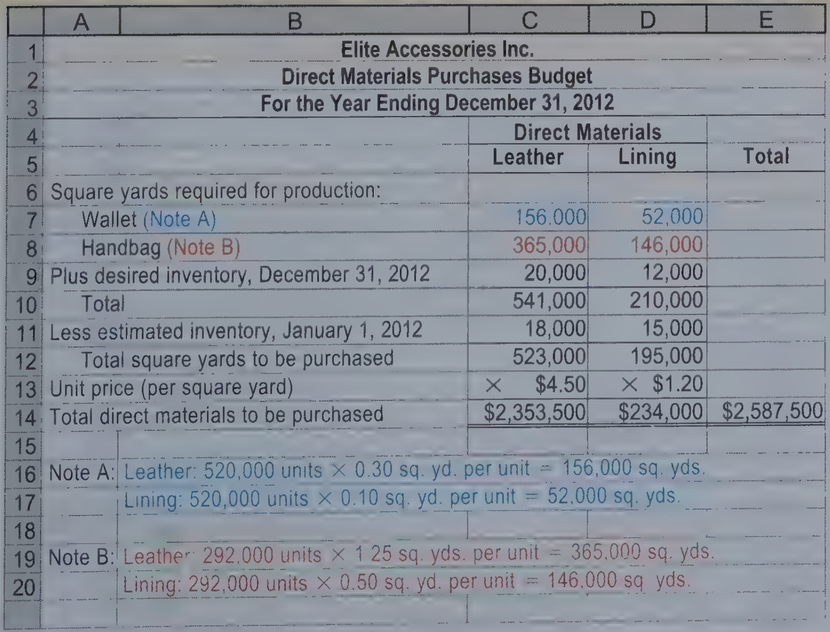


EXHIBIT 10

Direct Materials Purchases Budget

	A	B	C	D	E
1		Elite Accessories Inc.			
2		Direct Materials Purchases Budget			
3		For the Year Ending December 31, 2012			
4			Direct Materials		
5			Leather	Lining	Total
6	Square yards required for production:				
7	Wallet (Note A)		156,000	52,000	
8	Handbag (Note B)		365,000	146,000	
9	Plus desired inventory, December 31, 2012		20,000	12,000	
10	Total		541,000	210,000	
11	Less estimated inventory, January 1, 2012		18,000	15,000	
12	Total square yards to be purchased		523,000	195,000	
13	Unit price (per square yard)		× $4.50	× $1.20	
14	Total direct materials to be purchased		$2,353,500	$234,000	$2,587,500
15					
16	Note A:	Leather: 520,000 units × 0.30 sq. yd. per unit = 156,000 sq. yds.			
17		Lining: 520,000 units × 0.10 sq. yd. per unit = 52,000 sq. yds.			
18					
19	Note B:	Leather: 292,000 units × 1.25 sq. yds. per unit = 365,000 sq. yds.			
20		Lining: 292,000 units × 0.50 sq. yd. per unit = 146,000 sq. yds.			

The timing of the direct materials purchases should be coordinated between the purchasing and production departments so that production is not interrupted.

Example Exercise 22-3 Direct Materials Purchases Budget

OBJ. 4

Landon Awards Co. budgeted production of 47,000 brass plaques in 2012. Brass sheet is required to produce a brass plaque. Assume 96 square inches of brass sheet are required for each brass plaque. The estimated January 1, 2012, brass sheet inventory is 240,000 square inches. The desired December 31, 2012, brass sheet inventory is 200,000 square inches. If brass sheet costs $0.12 per square inch, determine the direct materials purchases budget for 2012.

Follow My Example 22-3

Square inches required for production:	
Brass sheet (47,000 × 96 sq. in.)	4,512,000
Plus desired ending inventory, December 31, 2012	200,000
Total	4,712,000
Less estimated beginning inventory, January 1, 2012	240,000
Total square inches to be purchased	4,472,000
Unit price (per square inch)	× $0.12
Total direct materials to be purchased	$ 536,640

Practice Exercises: **PE 22-3A, PE 22-3B**

Direct Labor Cost Budget

The **direct labor cost budget** estimates the direct labor hours and related cost needed to support budgeted production.

Elite Accessories Inc. estimates that the following direct labor hours are needed to produce a wallet and handbag:

Wallet	Handbag
Cutting Department: 0.10 hr. per unit	Cutting Department: 0.15 hr. per unit
Sewing Department: 0.25 hr. per unit	Sewing Department: 0.40 hr. per unit

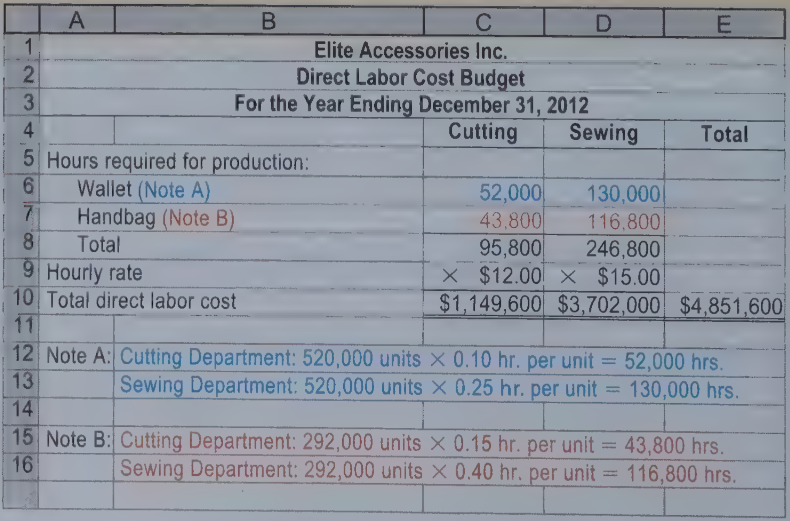
The estimated direct labor hourly rates for the Cutting and Sewing departments during 2012 are shown below.

	Hourly Rate
Cutting Department	$12
Sewing Department	15

Exhibit 11 illustrates the direct labor cost budget for Elite Accessories Inc.

EXHIBIT 11

Direct Labor Cost Budget



	A	B	C	D	E
1	Elite Accessories Inc.				
2	Direct Labor Cost Budget				
3	For the Year Ending December 31, 2012				
4			Cutting	Sewing	Total
5	Hours required for production:				
6	Wallet (Note A)		52,000	130,000	
7	Handbag (Note B)		43,800	116,800	
8	Total		95,800	246,800	
9	Hourly rate		× $12.00	× $15.00	
10	Total direct labor cost		$1,149,600	$3,702,000	$4,851,600
11					
12	Note A:	Cutting Department: 520,000 units × 0.10 hr. per unit = 52,000 hrs.			
13		Sewing Department: 520,000 units × 0.25 hr. per unit = 130,000 hrs.			
14					
15	Note B:	Cutting Department: 292,000 units × 0.15 hr. per unit = 43,800 hrs.			
16		Sewing Department: 292,000 units × 0.40 hr. per unit = 116,800 hrs.			

As shown in Exhibit 11, for Elite Accessories Inc. to produce 520,000 wallets, 52,000 hours (520,000 units × 0.10 hr. per unit) of labor are required in the Cutting Department. Likewise, to produce 292,000 handbags, 43,800 hours (292,000 units × 0.15 hour per unit) of labor are required in the Cutting Department. Thus, the estimated total direct labor cost for the Cutting Department is $1,149,600 [(52,000 hrs. + 43,800 hrs.) × $12 per hr.). In a similar manner, the direct labor hours and cost for the Sewing Department are determined.

The direct labor needs should be coordinated between the production and personnel departments so that there will be enough labor available for production.

Example Exercise 22-4 Direct Labor Cost Budget

OBJ. 4

Landon Awards Co. budgeted production of 47,000 brass plaques in 2012. Each plaque requires engraving. Assume that 12 minutes are required to engrave each plaque. If engraving labor costs $11.00 per hour, determine the direct labor cost budget for 2012.

Follow My Example 22-4

Hours required for engraving:	
Brass plaque (47,000 × 12 min.)	564,000 min.
Convert minutes to hours	÷ 60 min.
Engraving hours	9,400 hrs.
Hourly rate	× $11.00
Total direct labor cost	$103,400

Practice Exercises: **PE 22-4A, PE 22-4B**

Factory Overhead Cost Budget

The **factory overhead cost budget** estimates the cost for each item of factory overhead needed to support budgeted production.

Exhibit 12 illustrates the factory overhead cost budget for Elite Accessories Inc.

EXHIBIT 12

Factory Overhead Cost Budget

	A	B
1	Elite Accessories Inc.	
2	Factory Overhead Cost Budget	
3	For the Year Ending December 31, 2012	
4	Indirect factory wages	$ 732,800
5	Supervisor salaries	360,000
6	Power and light	306,000
7	Depreciation of plant and equipment	288,000
8	Indirect materials	182,800
9	Maintenance	140,280
10	Insurance and property taxes	79,200
11	Total factory overhead cost	$2,089,080

The factory overhead cost budget shown in Exhibit 12 may be supported by departmental schedules. Such schedules normally separate factory overhead costs into fixed and variable costs to better enable department managers to monitor and evaluate costs during the year.

The factory overhead cost budget should be integrated with the production budget to ensure that production is not interrupted during the year.

Cost of Goods Sold Budget

The **cost of goods sold budget** is prepared by integrating the following budgets:

1. Direct materials purchases budget (Exhibit 10)
2. Direct labor cost budget (Exhibit 11)
3. Factory overhead cost budget (Exhibit 12)

In addition, the estimated and desired inventories for direct materials, work in process, and finished goods must be integrated into the cost of goods sold budget.

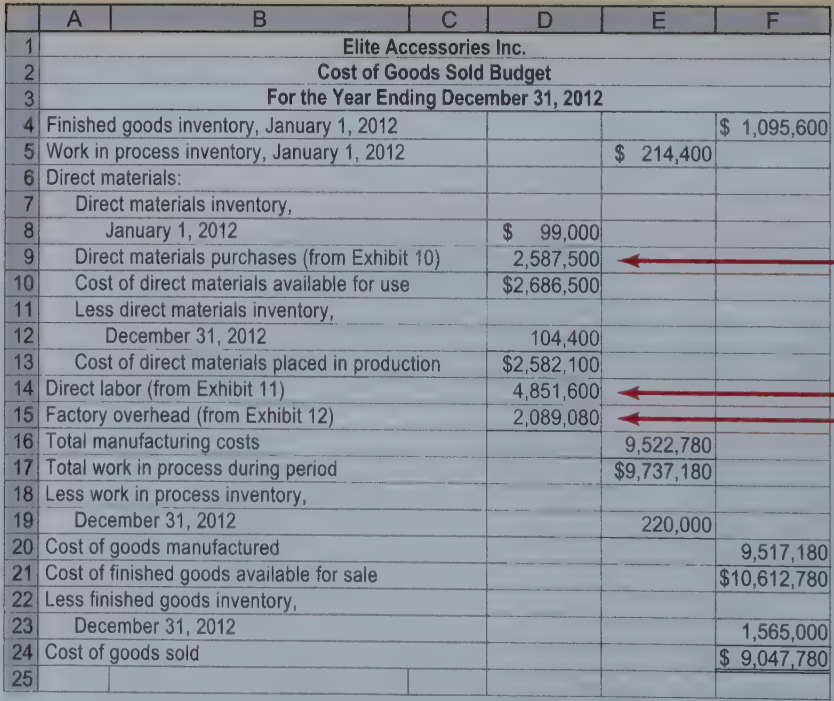
Elite Accessories Inc. expects the following direct materials, work in process, and finished goods inventories:

	Estimated Inventory Jan. 1, 2012	Desired Inventory Dec. 31, 2012
Direct materials:		
Leather	$ 81,000 (18,000 sq. yds. × $4.50)	$ 90,000 (20,000 sq. yds. × $4.50)
Lining	18,000 (15,000 sq. yds. × $1.20)	14,400 (12,000 sq. yds. × $1.20)
Total direct materials	$ 99,000	$ 104,400
Work in process:	$ 214,400	$ 220,000
Finished goods:	$1,095,600	$1,565,000

Exhibit 13 illustrates the cost of goods sold budget for Elite Accessories Inc. It indicates that total manufacturing costs of $9,522,780 are budgeted to be incurred in 2012. Of this total, $2,582,100 is budgeted for direct materials, $4,851,600 is budgeted for direct labor, and $2,089,080 is budgeted for factory overhead. After considering work in process inventories, the total budgeted cost of goods manufactured and transferred to finished goods during 2012 is $9,517,180. Based on expected sales, the budgeted cost of goods sold is $9,047,780.

EXHIBIT 13

Cost of Goods Sold Budget



	A	B	C	D	E	F
1	Elite Accessories Inc.					
2	Cost of Goods Sold Budget					
3	For the Year Ending December 31, 2012					
4	Finished goods inventory, January 1, 2012					$ 1,095,600
5	Work in process inventory, January 1, 2012				$ 214,400	
6	Direct materials:					
7	Direct materials inventory,					
8	January 1, 2012			$ 99,000		
9	Direct materials purchases (from Exhibit 10)			2,587,500		
10	Cost of direct materials available for use			$2,686,500		
11	Less direct materials inventory,					
12	December 31, 2012			104,400		
13	Cost of direct materials placed in production			$2,582,100		
14	Direct labor (from Exhibit 11)			4,851,600		
15	Factory overhead (from Exhibit 12)			2,089,080		
16	Total manufacturing costs				9,522,780	
17	Total work in process during period				$9,737,180	
18	Less work in process inventory,					
19	December 31, 2012				220,000	
20	Cost of goods manufactured					9,517,180
21	Cost of finished goods available for sale					$10,612,780
22	Less finished goods inventory,					
23	December 31, 2012					1,565,000
24	Cost of goods sold					$ 9,047,780
25						

Direct materials purchases budget

Direct labor cost budget

Factory overhead cost budget

Example Exercise 22-5 Cost of Goods Sold Budget

OBJ. 4

Prepare a cost of goods sold budget for Landon Awards Co. using the information in Example Exercises 22-3 and 22-4. Assume the estimated inventories on January 1, 2012, for finished goods and work in process were $54,000 and $47,000, respectively. Also assume the desired inventories on December 31, 2012, for finished goods and work in process were $50,000 and $49,000, respectively. Factory overhead was budgeted for $126,000.

Follow My Example 22-5

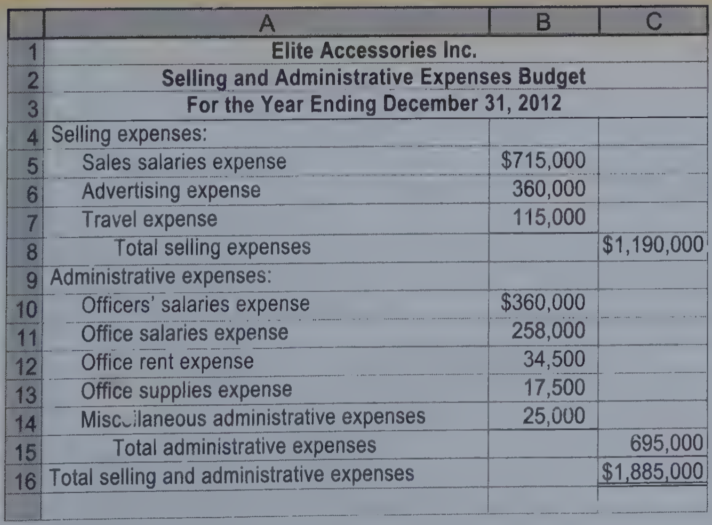
Finished goods inventory, January 1, 2012			$ 54,000
Work in process inventory, January 1, 2012		$ 47,000	
Direct materials:			
Direct materials inventory, January 1, 2012 (240,000 × $0.12, from EE 22-3)	$ 28,800		
Direct materials purchases (from EE 22-3)	536,640		
Cost of direct materials available for use	$565,440		
Less direct materials inventory, December 31, 2012 (200,000 × $0.12, from EE 22-3)	24,000		
Cost of direct materials placed in production	$541,440		
Direct labor (from EE 22-4)	103,400		
Factory overhead	126,000		
Total manufacturing costs		770,840	
Total work in process during period		$817,840	
Less work in process inventory, December 31, 2012		49,000	
Cost of goods manufactured			768,840
Cost of finished goods available for sale			$822,840
Less finished goods inventory, December 31, 2012			50,000
Cost of goods sold			$772,840

Practice Exercises: PE 22-5A, PE 22-5B

Selling and Administrative Expenses Budget

The sales budget is often used as the starting point for the selling and administrative expenses budget. For example, a budgeted increase in sales may require more advertising expenses.

Exhibit 14 illustrates the selling and administrative expenses budget for Elite Accessories Inc.



	A	B	C
1	Elite Accessories Inc.		
2	Selling and Administrative Expenses Budget		
3	For the Year Ending December 31, 2012		
4	Selling expenses:		
5	Sales salaries expense	$715,000	
6	Advertising expense	360,000	
7	Travel expense	115,000	
8	Total selling expenses		$1,190,000
9	Administrative expenses:		
10	Officers' salaries expense	$360,000	
11	Office salaries expense	258,000	
12	Office rent expense	34,500	
13	Office supplies expense	17,500	
14	Miscellaneous administrative expenses	25,000	
15	Total administrative expenses		695,000
16	Total selling and administrative expenses		$1,885,000

EXHIBIT 14

Selling and Administrative Expenses Budget

The selling and administrative expenses budget shown in Exhibit 14 is normally supported by departmental schedules. For example, an advertising expense schedule for the Marketing Department could include the advertising media to be used (newspaper, direct mail, television), quantities (column inches, number of pieces, minutes), and related costs per unit.

Budgeted Income Statement

The budgeted income statement is prepared by integrating the following budgets:

1. Sales budget (Exhibit 8)
2. Cost of goods sold budget (Exhibit 13)
3. Selling and administrative expenses budget (Exhibit 14)

In addition, estimates of other income, other expense, and income tax are also integrated into the budgeted income statement.

Exhibit 15 illustrates the budgeted income statement for Elite Accessories Inc. This budget summarizes the budgeted operating activities of the company. In doing so, the budgeted income statement allows management to assess the effects of estimated sales, costs, and expenses on profits for the year.

OBJ. 5 Prepare balance sheet budgets for a manufacturing company.

Balance Sheet Budgets

While the income statement budgets reflect the operating activities of the company, the balance sheet budgets reflect the financing and investing activities. In this section, the following balance sheet budgets are described and illustrated:

1. Cash budget (financing activity)
2. Capital expenditures budget (investing activity)

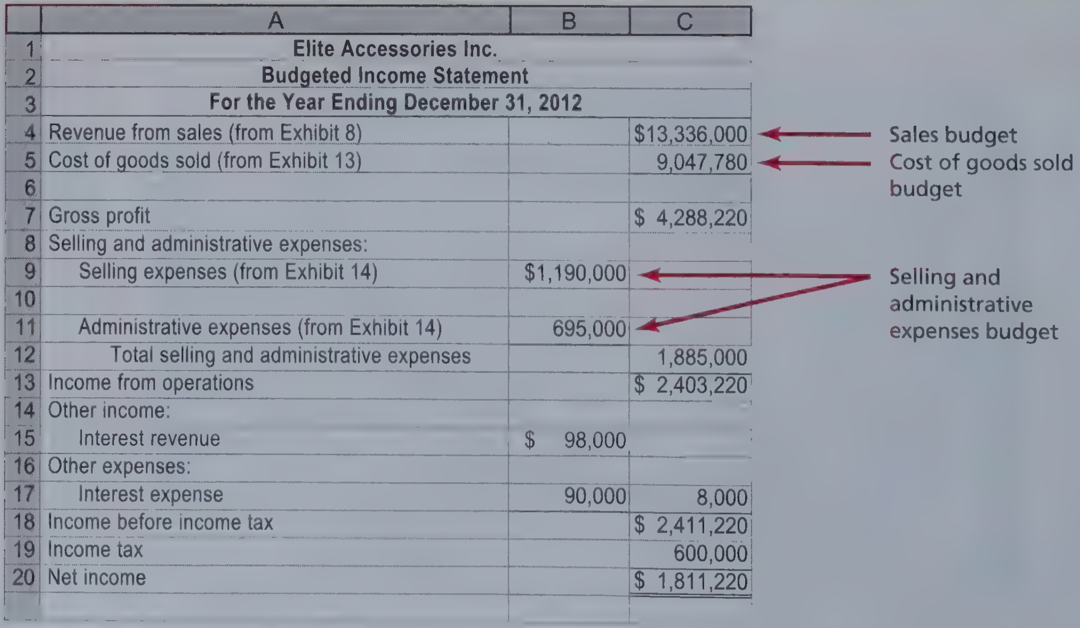
Note:

The cash budget presents the expected receipts and payments of cash for a period of time.

Cash Budget

The **cash budget** estimates the expected receipts (inflows) and payments (outflows) of cash for a period of time. The cash budget is integrated with the various operating

EXHIBIT 15 **Budgeted Income Statement**



	A	B	C
1	Elite Accessories Inc.		
2	Budgeted Income Statement		
3	For the Year Ending December 31, 2012		
4	Revenue from sales (from Exhibit 8)		$13,336,000
5	Cost of goods sold (from Exhibit 13)		9,047,780
6			
7	Gross profit		$ 4,288,220
8	Selling and administrative expenses:		
9	Selling expenses (from Exhibit 14)	$1,190,000	
10			
11	Administrative expenses (from Exhibit 14)	695,000	
12	Total selling and administrative expenses		1,885,000
13	Income from operations		$ 2,403,220
14	Other income:		
15	Interest revenue	$ 98,000	
16	Other expenses:		
17	Interest expense	90,000	8,000
18	Income before income tax		$ 2,411,220
19	Income tax		600,000
20	Net income		$ 1,811,220

budgets. In addition, the capital expenditures budget, dividends, and equity or long-term debt financing plans of the company affect the cash budget.

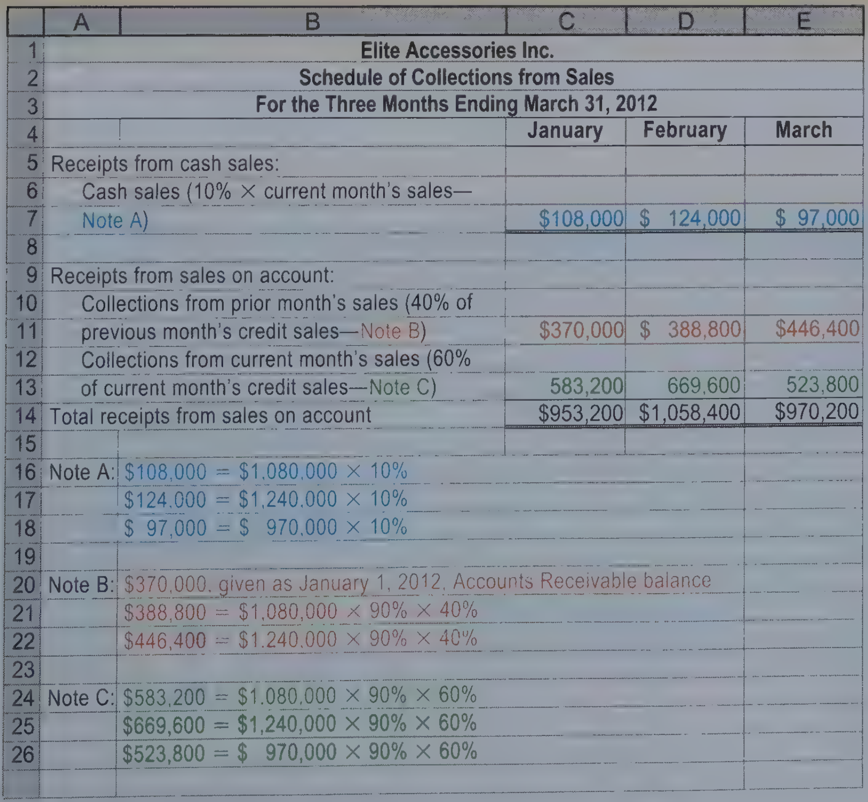
To illustrate, a monthly cash budget for January, February, and March 2012 for Elite Accessories Inc. is prepared. The preparation of the cash budget begins by estimating cash receipts.

Estimated Cash Receipts The primary source of estimated cash receipts is from cash sales and collections on account. In addition, cash receipts may be obtained from plans to issue equity or debt financing as well as other sources such as interest revenue.

To estimate cash receipts from cash sales and collections on account, a *schedule of collections from sales* is prepared. To illustrate, the following data for Elite Accessories Inc. are used:

	January	February	March
Sales:			
Budgeted sales	$1,080,000	$1,240,000	$970,000
Percent of cash sales	10%	10%	10%
Accounts receivable, January 1, 2012	$ 370,000		
Receipts from sales on account:			
From prior month's sales on account	40%		
From current month's sales on account	60		
	100%		

Using the preceding data, the schedule of collections from sales is prepared, as shown in Exhibit 16. Cash sales are determined by multiplying the percent of cash sales by the monthly budgeted sales. The cash receipts from sales on account are determined by adding the cash received from the prior month's sales on account (40%) and the cash received from the current month's sales on account (60%). To simplify, it is assumed that all accounts receivable are collected.



	A	B	C	D	E
1	Elite Accessories Inc.				
2	Schedule of Collections from Sales				
3	For the Three Months Ending March 31, 2012				
4			January	February	March
5	Receipts from cash sales:				
6		Cash sales (10% × current month's sales—			
7		Note A)	$108,000	$ 124,000	$ 97,000
8					
9	Receipts from sales on account:				
10		Collections from prior month's sales (40% of			
11		previous month's credit sales—Note B)	$370,000	$ 388,800	$446,400
12		Collections from current month's sales (60%			
13		of current month's credit sales—Note C)	583,200	669,600	523,800
14	Total receipts from sales on account		$953,200	$1,058,400	$970,200
15					
16	Note A:	$108,000 = $1,080,000 × 10%			
17		$124,000 = $1,240,000 × 10%			
18		$ 97,000 = $ 970,000 × 10%			
19					
20	Note B:	$370,000, given as January 1, 2012, Accounts Receivable balance			
21		$388,800 = $1,080,000 × 90% × 40%			
22		$446,400 = $1,240,000 × 90% × 40%			
23					
24	Note C:	$583,200 = $1,080,000 × 90% × 60%			
25		$669,600 = $1,240,000 × 90% × 60%			
26		$523,800 = $ 970,000 × 90% × 60%			

EXHIBIT 16

Schedule of Collections from Sales

Estimated Cash Payments Estimated cash payments must be budgeted for operating costs and expenses such as manufacturing costs, selling expenses, and administrative expenses. In addition, estimated cash payments may be planned for capital expenditures, dividends, interest payments, or long-term debt payments.

To estimate cash payments for manufacturing costs, a *schedule of payments for manufacturing costs* is prepared. To illustrate, the following data for Elite Accessories Inc. are used:

	January	February	March
Manufacturing Costs:			
Budgeted manufacturing costs	$840,000	$780,000	$812,000
Depreciation on machines included in manufacturing costs	24,000	24,000	24,000
Accounts Payable:			
Accounts payable, January 1, 2012	$190,000		
Payments of manufacturing costs on account:			
From prior month's manufacturing costs	25%		
From current month's manufacturing costs	75		
	100%		

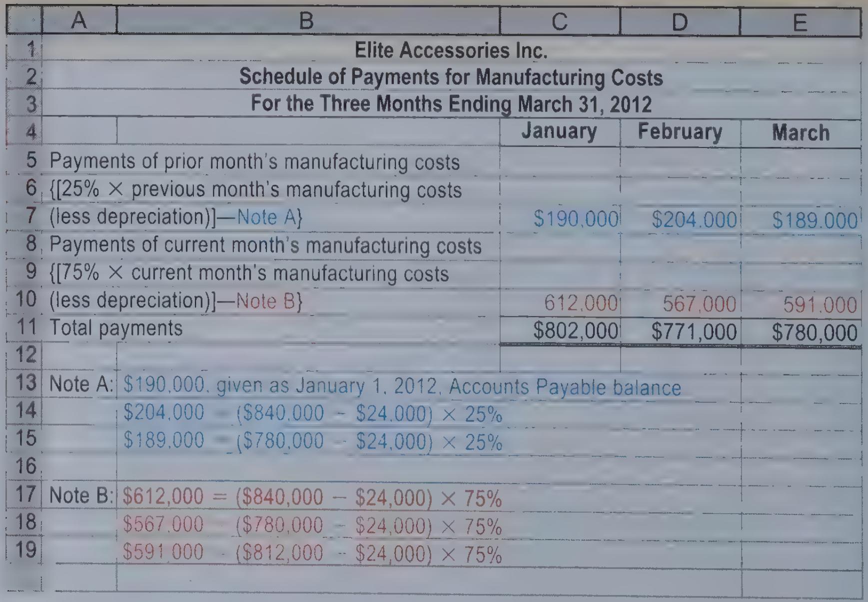
Using the preceding data, the schedule of payments for manufacturing costs is prepared, as shown in Exhibit 17. The cash payments are determined by adding the cash paid on costs incurred from the prior month (25%) to the cash paid on costs incurred in the current month (75%). The $24,000 of depreciation is excluded from all computations, since depreciation does not require a cash payment.

Completing the Cash Budget Assume the additional data for Elite Accessories Inc. shown below.

Cash balance on January 1, 2012	$280,000
Quarterly taxes paid on March 31, 2012	150,000
Quarterly interest expense paid on January 10, 2012	22,500
Quarterly interest revenue received on March 21, 2012	24,500
Sewing equipment purchased in February 2012	274,000

EXHIBIT 17

Schedule of Payments for Manufacturing Costs



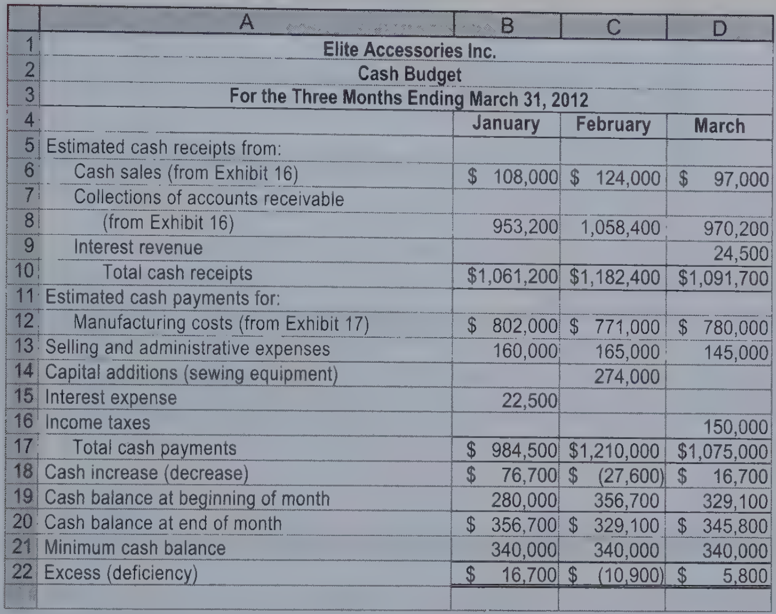
	A	B	C	D	E
1	Elite Accessories Inc.				
2	Schedule of Payments for Manufacturing Costs				
3	For the Three Months Ending March 31, 2012				
4			January	February	March
5	Payments of prior month's manufacturing costs				
6	{[25% × previous month's manufacturing costs				
7	(less depreciation)]—Note A}		$190,000	$204,000	$189,000
8	Payments of current month's manufacturing costs				
9	{[75% × current month's manufacturing costs				
10	(less depreciation)]—Note B}		612,000	567,000	591,000
11	Total payments		$802,000	$771,000	$780,000
12					
13	Note A:	$190,000, given as January 1, 2012, Accounts Payable balance			
14		$204,000 = ($840,000 − $24,000) × 25%			
15		$189,000 = ($780,000 − $24,000) × 25%			
16					
17	Note B:	$612,000 = ($840,000 − $24,000) × 75%			
18		$567,000 = ($780,000 − $24,000) × 75%			
19		$591,000 = ($812,000 − $24,000) × 75%			

Selling and administrative expenses (paid in month incurred):

January	February	March
$160,000	$165,000	$145,000

Using the preceding data, the *cash budget* is prepared, as shown in Exhibit 18.

EXHIBIT 18 **Cash Budget**



	A	B	C	D
1	Elite Accessories Inc.			
2	Cash Budget			
3	For the Three Months Ending March 31, 2012			
4		January	February	March
5	Estimated cash receipts from:			
6	Cash sales (from Exhibit 16)	$ 108,000	$ 124,000	$ 97,000
7	Collections of accounts receivable			
8	(from Exhibit 16)	953,200	1,058,400	970,200
9	Interest revenue			24,500
10	Total cash receipts	$1,061,200	$1,182,400	$1,091,700
11	Estimated cash payments for:			
12	Manufacturing costs (from Exhibit 17)	$ 802,000	$ 771,000	$ 780,000
13	Selling and administrative expenses	160,000	165,000	145,000
14	Capital additions (sewing equipment)		274,000	
15	Interest expense	22,500		
16	Income taxes			150,000
17	Total cash payments	$ 984,500	$1,210,000	$1,075,000
18	Cash increase (decrease)	$ 76,700	$ (27,600)	$ 16,700
19	Cash balance at beginning of month	280,000	356,700	329,100
20	Cash balance at end of month	$ 356,700	$ 329,100	$ 345,800
21	Minimum cash balance	340,000	340,000	340,000
22	Excess (deficiency)	$ 16,700	$ (10,900)	$ 5,800

Schedule of collections from sales

Schedule of cash payments for manufacturing costs

As shown in Exhibit 18, Elite Accessories Inc. has estimated that a *minimum cash balance* of $340,000 is required at the end of each month to support its operations. This minimum cash balance is compared to the estimated ending cash balance for each month. In this way, any expected cash excess or deficiency is determined.

Exhibit 18 indicates that Elite Accessories expects a cash excess at the end of January of $16,700. This excess could be invested in temporary income-producing securities such as U.S. Treasury bills or notes. In contrast, the estimated cash deficiency at the end of February of $10,900 might require Elite Accessories to borrow cash from its bank.

Example Exercise 22-6 Cash Budget

OBJ. 5

Landon Awards Co. collects 25% of its sales on account in the month of the sale and 75% in the month following the sale. If sales on account are budgeted to be $100,000 for March and $126,000 for April, what are the budgeted cash receipts from sales on account for April?

Follow My Example 22-6

	April
Collections from March sales (75% × $100,000)	$ 75,000
Collections from April sales (25% × $126,000)	31,500
Total receipts from sales on account	$106,500

Practice Exercises: **PE 22-6A, PE 22-6B**

Capital Expenditures Budget

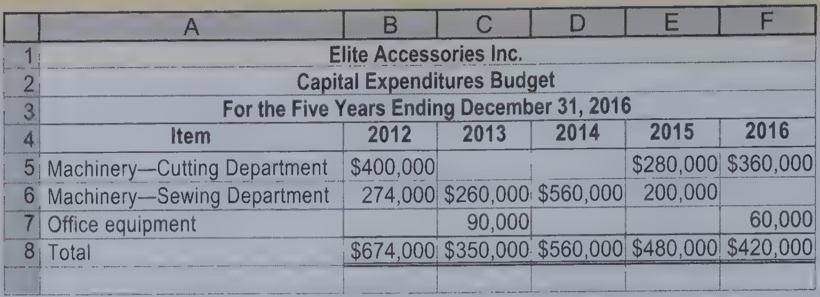
The **capital expenditures budget** summarizes plans for acquiring fixed assets. Such expenditures are necessary as machinery and other fixed assets wear out or become

obsolete. In addition, purchasing additional fixed assets may be necessary to meet increasing demand for the company's product.

To illustrate, a five-year capital expenditures budget for Elite Accessories Inc. is shown in Exhibit 19.

EXHIBIT 19

Capital Expenditures Budget



	A	B	C	D	E	F
1	Elite Accessories Inc.					
2	Capital Expenditures Budget					
3	For the Five Years Ending December 31, 2016					
4	Item	2012	2013	2014	2015	2016
5	Machinery—Cutting Department	$400,000			$280,000	$360,000
6	Machinery—Sewing Department	274,000	$260,000	$560,000	200,000	
7	Office equipment		90,000			60,000
8	Total	$674,000	$350,000	$560,000	$480,000	$420,000

As shown in Exhibit 19, capital expenditures budgets are often prepared for five to ten years into the future. This is necessary since fixed assets often must be ordered years in advance. Likewise, it could take years to construct new buildings or other production facilities.

The capital expenditures budget should be integrated with the operating and financing budgets. For example, depreciation of new manufacturing equipment affects the factory overhead cost budget. The plans for financing the capital expenditures also affect the cash budget.

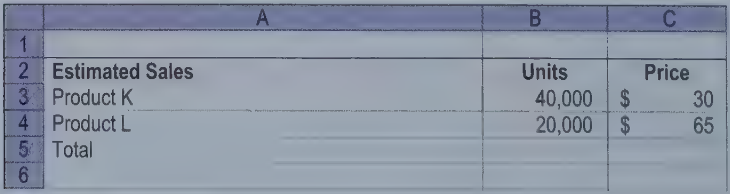
Budgeted Balance Sheet

The budgeted balance sheet is prepared based on the operating, financing, and investing budgets of the master budget. The budgeted balance sheet is dated as of the end of the budget period and is similar to a normal balance sheet except that estimated amounts are used. For this reason, a budgeted balance sheet for Elite Accessories Inc. is not illustrated.

Comprehensive Spreadsheet Illustration: Master Budget
The master budget is often developed on a spreadsheet. A spreadsheet to create the master budget is shown below. Spreadsheet formulas in selected cells are identified to illustrate the relationships.

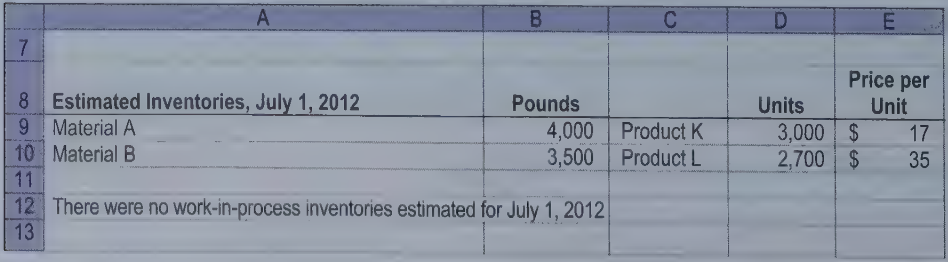
Selected information concerning estimated sales and production for Cabot Co. for July 2012 are summarized in a spreadsheet as follows:

a. Estimated sales:



	A	B	C
1			
2	Estimated Sales	Units	Price
3	Product K	40,000	$ 30
4	Product L	20,000	$ 65
5	Total		
6			

b. Estimated inventories, July 1, 2012:



	A	B	C	D	E
7					
8	Estimated Inventories, July 1, 2012	Pounds		Units	Price per Unit
9	Material A	4,000	Product K	3,000	$ 17
10	Material B	3,500	Product L	2,700	$ 35
11					
12	There were no work-in-process inventories estimated for July 1, 2012				
13					

c. Desired inventories, July 31, 2012:

	A	B	C	D	E
14					
15	**Desired Inventories, July 31, 2012**	**Pounds**		**Units**	**Price per Unit**
16	Material A	3,000	Product K	2,500	$ 17
17	Material B	2,500	Product L	2,000	$ 35
18					
19	There were no work-in-process inventories desired for July 31, 2012				
20					

d. Direct materials used in production:

	A	B	C
21			
22	**Direct materials used in production (pounds per unit)**	**Product K**	**Product L**
23	Material A	0.7	3.5
24	Material B	1.2	1.8
25			

e. Unit cost for direct materials (price per lb.):

	A	B
26		
27	**Unit costs for direct materials (per pound)**	
28	Material A	$ 4.00
29	Material B	$ 2.00
30		

f. Direct labor requirements per unit:

	A	B	C
31			
32	**Direct labor requirements (hours per unit)**	**Department 1**	**Department 2**
33	Product K	0.40	0.15
34	Product L	0.60	0.25
35			

g. Direct labor rate:

	A	B	C
36			
37		**Department 1**	**Department 2**
38	Direct labor rate (per hour)	$ 12.00	$ 16.00
39			

h. Estimated factory overhead costs for July:

	A	B
40		
41	Estimated factory overhead costs for July:	
42	Indirect factory wages	$ 200,000
43	Depreciation of plant and equipment	40,000
44	Power and light	25,000
45	Indirect materials	34,000
46	Total	$ 299,000
47		

Instructions:

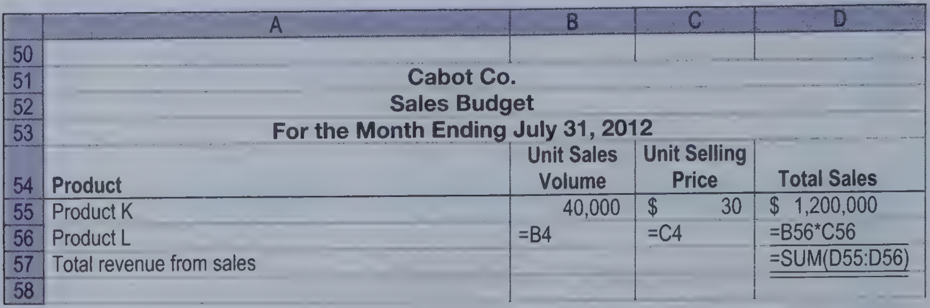
1. Prepare a sales budget for July.
2. Prepare a production budget for July.
3. Prepare a direct materials budget for July.
4. Prepare a direct labor cost budget for July.
5. Prepare a cost of goods sold budget for July.

Note: Numbers correlate to the solutions outlined in the following pages.

Spreadsheet Solution

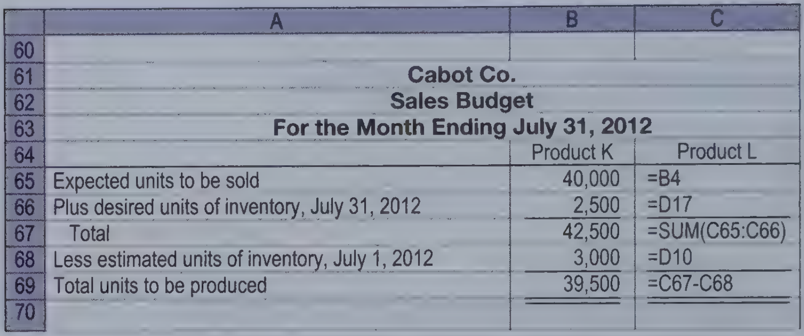
Formulas are provided for selected cells. Many formulas are provided for Product L. Use the Product L formulas as a pattern to determine the correct Product K cell references and formulas.

1. Sales Budget:



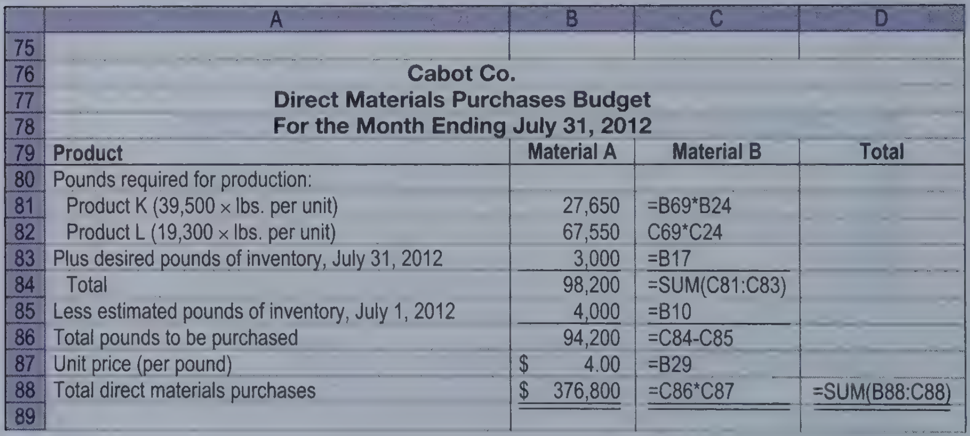
	A	B	C	D
50				
51	Cabot Co.			
52	Sales Budget			
53	For the Month Ending July 31, 2012			
54	Product	Unit Sales Volume	Unit Selling Price	Total Sales
55	Product K	40,000	$ 30	$ 1,200,000
56	Product L	=B4	=C4	=B56*C56
57	Total revenue from sales			=SUM(D55:D56)
58				

2. Production Budget:



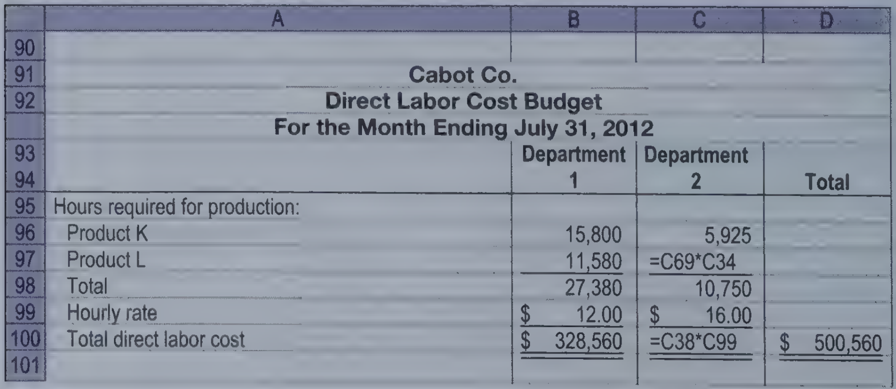
	A	B	C
60			
61	Cabot Co.		
62	Sales Budget		
63	For the Month Ending July 31, 2012		
64		Product K	Product L
65	Expected units to be sold	40,000	=B4
66	Plus desired units of inventory, July 31, 2012	2,500	=D17
67	Total	42,500	=SUM(C65:C66)
68	Less estimated units of inventory, July 1, 2012	3,000	=D10
69	Total units to be produced	39,500	=C67-C68
70			

3. Direct Material Purchases Budget



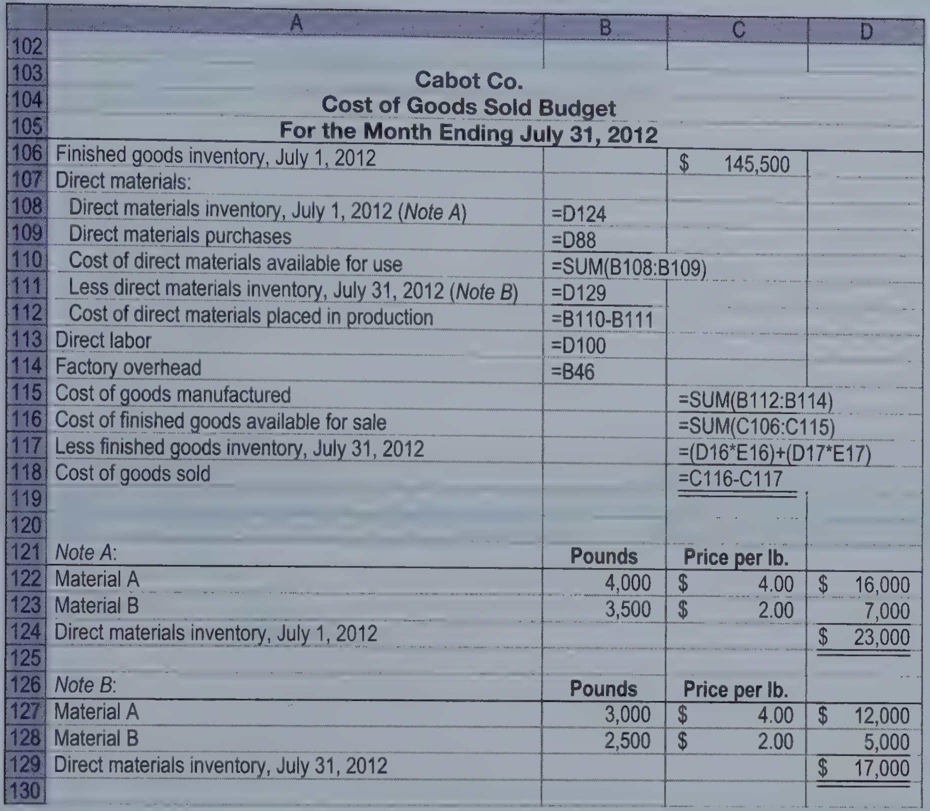
	A	B	C	D
75				
76	Cabot Co.			
77	Direct Materials Purchases Budget			
78	For the Month Ending July 31, 2012			
79	Product	Material A	Material B	Total
80	Pounds required for production:			
81	Product K (39,500 × lbs. per unit)	27,650	=B69*B24	
82	Product L (19,300 × lbs. per unit)	67,550	C69*C24	
83	Plus desired pounds of inventory, July 31, 2012	3,000	=B17	
84	Total	98,200	=SUM(C81:C83)	
85	Less estimated pounds of inventory, July 1, 2012	4,000	=B10	
86	Total pounds to be purchased	94,200	=C84-C85	
87	Unit price (per pound)	$ 4.00	=B29	
88	Total direct materials purchases	$ 376,800	=C86*C87	=SUM(B88:C88)
89				

4. Direct Labor Cost Budget



	A	B	C	D
90				
91	Cabot Co.			
92	Direct Labor Cost Budget			
	For the Month Ending July 31, 2012			
93		Department	Department	
94		1	2	Total
95	Hours required for production:			
96	Product K	15,800	5,925	
97	Product L	11,580	=C69*C34	
98	Total	27,380	10,750	
99	Hourly rate	$ 12.00	$ 16.00	
100	Total direct labor cost	$ 328,560	=C38*C99	$ 500,560
101				

5. Cost of Goods Sold Budget



	A	B	C	D
102				
103	**Cabot Co.**			
104	**Cost of Goods Sold Budget**			
105	**For the Month Ending July 31, 2012**			
106	Finished goods inventory, July 1, 2012		$ 145,500	
107	Direct materials:			
108	Direct materials inventory, July 1, 2012 (*Note A*)	=D124		
109	Direct materials purchases	=D88		
110	Cost of direct materials available for use	=SUM(B108:B109)		
111	Less direct materials inventory, July 31, 2012 (*Note B*)	=D129		
112	Cost of direct materials placed in production	=B110-B111		
113	Direct labor	=D100		
114	Factory overhead	=B46		
115	Cost of goods manufactured		=SUM(B112:B114)	
116	Cost of finished goods available for sale		=SUM(C106:C115)	
117	Less finished goods inventory, July 31, 2012		=(D16*E16)+(D17*E17)	
118	Cost of goods sold		=C116-C117	
119				
120				
121	*Note A*:	**Pounds**	**Price per lb.**	
122	Material A	4,000	$ 4.00	$ 16,000
123	Material B	3,500	$ 2.00	7,000
124	Direct materials inventory, July 1, 2012			$ 23,000
125				
126	*Note B*:	**Pounds**	**Price per lb.**	
127	Material A	3,000	$ 4.00	$ 12,000
128	Material B	2,500	$ 2.00	5,000
129	Direct materials inventory, July 31, 2012			$ 17,000
130				

At a Glance 22

OBJ. 1

Describe budgeting, its objectives, and its impact on human behavior.

Key Points Budgeting involves (1) establishing plans (planning), (2) directing operations (directing), and (3) evaluating performance (controlling). In addition, budgets should be established to avoid human behavior problems.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Describe the planning, directing, controlling, and feedback elements of the budget process.		
• Describe the behavioral issues associated with tight goals, loose goals, and goal conflict.		

OBJ. 2 Describe the basic elements of the budget process, the two major types of budgeting, and the use of computers in budgeting.

Key Points The budget estimates received by the budget committee should be carefully studied, analyzed, revised, and integrated. The static and flexible budgets are two major budgeting approaches. Computers can be used to make the budget process more efficient and organizationally integrated.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe a static budget and explain when it might be used.		
• Describe and prepare a flexible budget and explain when it might be used.	EE22-1	PE22-1A, 22-1B
• Describe the role of computers in the budget process.		

OBJ. 3 Describe the master budget for a manufacturing company.

Key Points The master budget consists of the budgeted income statement and budgeted balance sheet.

Learning Outcome	Example Exercises	Practice Exercises
• Illustrate the connection between the major income statement and balance sheet budgets.		

OBJ. 4 Prepare the basic income statement budgets for a manufacturing company.

Key Points The basic income statement budgets are the sales budget, production budget, direct materials purchases budget, direct labor cost budget, factory overhead cost budget, cost of goods sold budget, and selling and administrative expenses budget.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare a sales budget.		
• Prepare a production budget.	EE22-2	PE22-2A, 22-2B
• Prepare a direct materials purchases budget.	EE22-3	PE22-3A, 22-3B
• Prepare a direct labor cost budget.	EE22-4	PE22-4A, 22-4B
• Prepare a factory overhead cost budget.		
• Prepare a cost of goods sold budget.	EE22-5	PE22-5A, 22-5B
• Prepare a selling and administrative expenses budget.		

OBJ. 5 Prepare balance sheet budgets for a manufacturing company.

Key Points The cash budget and capital expenditures budget can be used in preparing the budgeted balance sheet.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare cash receipts and cash payments budgets.	EE22-6	PE22-6A, 22-6B
• Prepare a capital expenditures budget.		

Key Terms

budget (1016)
budgetary slack (1018)
capital expenditures budget (1035)
cash budget (1032)
continuous budgeting (1018)
cost of goods sold budget (1030)
direct labor cost budget (1028)
direct materials purchases budget (1026)
factory overhead cost budget (1029)
flexible budget (1020)
goal conflict (1018)
master budget (1023)
production budget (1025)
responsibility center (1017)
sales budget (1024)
static budget (1019)
zero-based budgeting (1019)

Illustrative Problem

Selected information concerning sales and production for Cabot Co. for July 2012 are summarized as follows:

a. Estimated sales:

Product K: 40,000 units at $30.00 per unit
Product L: 20,000 units at $65.00 per unit

b. Estimated inventories, July 1, 2012:

Material A:	4,000 lbs.	Product K:	3,000 units at $17 per unit	$ 51,000
Material B:	3,500 lbs.	Product L:	2,700 units at $35 per unit	94,500
		Total		$145,500

There were no work in process inventories estimated for July 1, 2012.

c. Desired inventories at July 31, 2012:

Material A:	3,000 lbs.	Product K:	2,500 units at $17 per unit	$ 42,500
Material B:	2,500 lbs.	Product L:	2,000 units at $35 per unit	70,000
		Total		$112,500

There were no work in process inventories desired for July 31, 2012.

d. Direct materials used in production:

	Product K	**Product L**
Material A:	0. 7 lb. per unit	3.5 lbs. per unit
Material B:	1.2 lbs. per unit	1.8 lbs. per unit

e. Unit costs for direct materials:

Material A: $4.00 per lb.
Material B: $2.00 per lb.

f. Direct labor requirements:

	Department 1	**Department 2**
Product K	0.4 hr. per unit	0.15 hr. per unit
Product L	0.6 hr. per unit	0.25 hr. per unit

g.

	Department 1	**Department 2**
Direct labor rate	$12.00 per hr.	$16.00 per hr.

h. Estimated factory overhead costs for July:

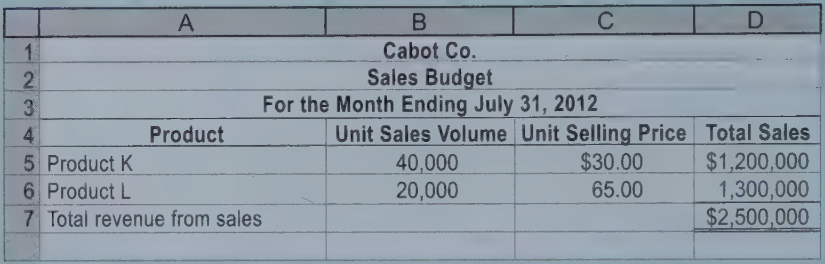
Indirect factory wages	$200,000
Depreciation of plant and equipment	40,000
Power and light	25,000
Indirect materials	34,000
Total	$299,000

Instructions

1. Prepare a sales budget for July.
2. Prepare a production budget for July.
3. Prepare a direct materials purchases budget for July.
4. Prepare a direct labor cost budget for July.
5. Prepare a cost of goods sold budget for July.

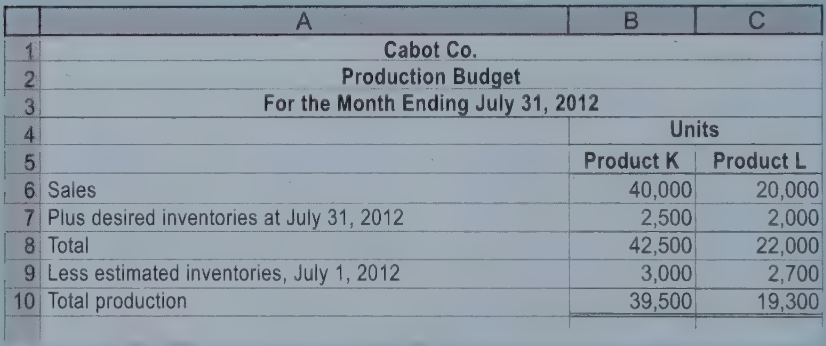
Solution

1.



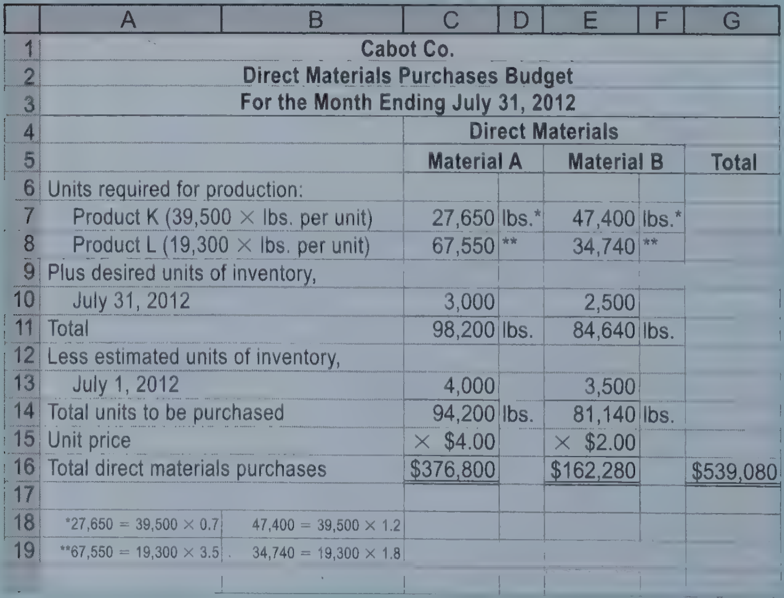
	A	B	C	D
1	Cabot Co.			
2	Sales Budget			
3	For the Month Ending July 31, 2012			
4	Product	Unit Sales Volume	Unit Selling Price	Total Sales
5	Product K	40,000	$30.00	$1,200,000
6	Product L	20,000	65.00	1,300,000
7	Total revenue from sales			$2,500,000

2.



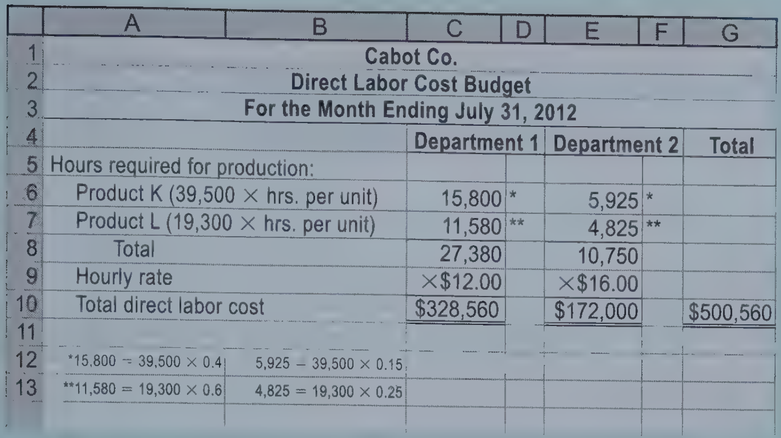
	A	B	C
1	Cabot Co.		
2	Production Budget		
3	For the Month Ending July 31, 2012		
4		Units	
5		Product K	Product L
6	Sales	40,000	20,000
7	Plus desired inventories at July 31, 2012	2,500	2,000
8	Total	42,500	22,000
9	Less estimated inventories, July 1, 2012	3,000	2,700
10	Total production	39,500	19,300

3.



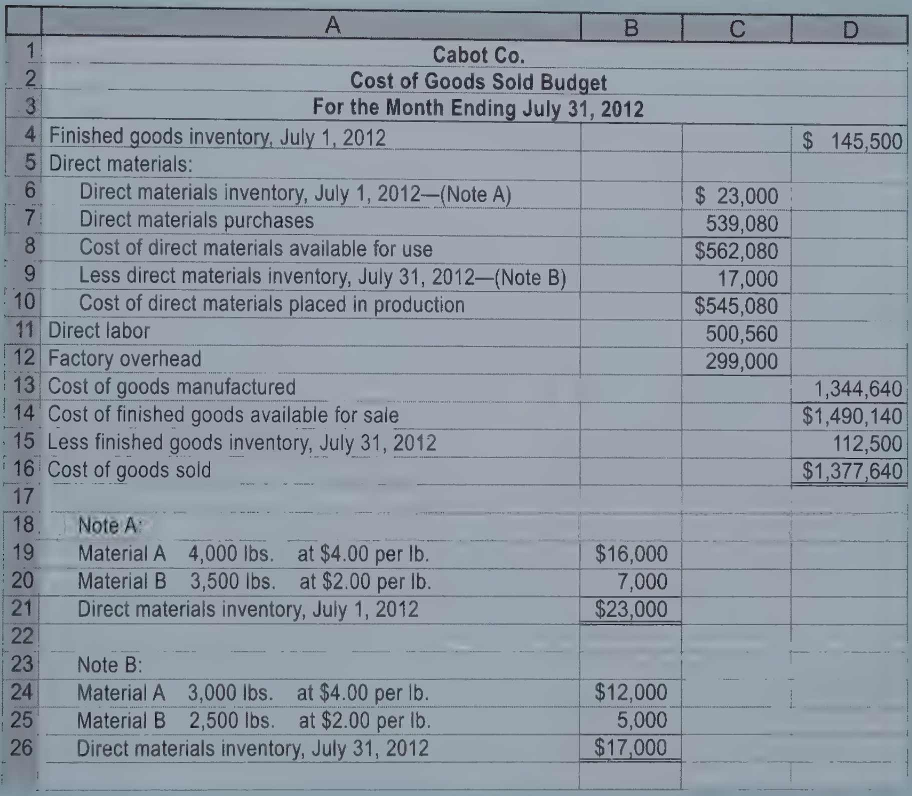
	A	B	C	D	E	F	G
1	Cabot Co.						
2	Direct Materials Purchases Budget						
3	For the Month Ending July 31, 2012						
4			Direct Materials				
5			Material A		Material B		Total
6	Units required for production:						
7	Product K (39,500 × lbs. per unit)		27,650	lbs.*	47,400	lbs.*	
8	Product L (19,300 × lbs. per unit)		67,550	**	34,740	**	
9	Plus desired units of inventory,						
10	July 31, 2012		3,000		2,500		
11	Total		98,200	lbs.	84,640	lbs.	
12	Less estimated units of inventory,						
13	July 1, 2012		4,000		3,500		
14	Total units to be purchased		94,200	lbs.	81,140	lbs.	
15	Unit price		× $4.00		× $2.00		
16	Total direct materials purchases		$376,800		$162,280		$539,080
17							
18	*27,650 = 39,500 × 0.7	47,400 = 39,500 × 1.2					
19	**67,550 = 19,300 × 3.5	34,740 = 19,300 × 1.8					

4.



	A	B	C	D	E	F	G
1	Cabot Co.						
2	Direct Labor Cost Budget						
3	For the Month Ending July 31, 2012						
4			Department 1		Department 2		Total
5	Hours required for production:						
6	Product K (39,500 × hrs. per unit)		15,800	*	5,925	*	
7	Product L (19,300 × hrs. per unit)		11,580	**	4,825	**	
8	Total		27,380		10,750		
9	Hourly rate		×$12.00		×$16.00		
10	Total direct labor cost		$328,560		$172,000		$500,560
11							
12	*15,800 = 39,500 × 0.4	5,925 = 39,500 × 0.15					
13	**11,580 = 19,300 × 0.6	4,825 = 19,300 × 0.25					

5.



	A	B	C	D
1	Cabot Co.			
2	Cost of Goods Sold Budget			
3	For the Month Ending July 31, 2012			
4	Finished goods inventory, July 1, 2012			$ 145,500
5	Direct materials:			
6	Direct materials inventory, July 1, 2012—(Note A)		$ 23,000	
7	Direct materials purchases		539,080	
8	Cost of direct materials available for use		$562,080	
9	Less direct materials inventory, July 31, 2012—(Note B)		17,000	
10	Cost of direct materials placed in production		$545,080	
11	Direct labor		500,560	
12	Factory overhead		299,000	
13	Cost of goods manufactured			1,344,640
14	Cost of finished goods available for sale			$1,490,140
15	Less finished goods inventory, July 31, 2012			112,500
16	Cost of goods sold			$1,377,640
17				
18	Note A:			
19	Material A 4,000 lbs. at $4.00 per lb.	$16,000		
20	Material B 3,500 lbs. at $2.00 per lb.	7,000		
21	Direct materials inventory, July 1, 2012	$23,000		
22				
23	Note B:			
24	Material A 3,000 lbs. at $4.00 per lb.	$12,000		
25	Material B 2,500 lbs. at $2.00 per lb.	5,000		
26	Direct materials inventory, July 31, 2012	$17,000		

Discussion Questions

1. What are the three major objectives of budgeting?
2. Briefly describe the type of human behavior problems that might arise if budget goals are set too tightly.
3. What behavioral problems are associated with setting a budget too loosely?
4. What behavioral problems are associated with establishing conflicting goals within the budget?
5. Under what circumstances would a static budget be appropriate?
6. How do computerized budgeting systems aid firms in the budgeting process?
7. Why should the production requirements set forth in the production budget be carefully coordinated with the sales budget?
8. Why should the timing of direct materials purchases be closely coordinated with the production budget?
9. a. Discuss the purpose of the cash budget.
   b. If the cash for the first quarter of the fiscal year indicates excess cash at the end of each of the first two months, how might the excess cash be used?
10. Give an example of how the capital expenditures budget affects other operating budgets.

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 2 **EE 22-1** p. 1022

PE 22-1A Flexible budgeting

At the beginning of the period, the Assembly Department budgeted direct labor of $166,500 and property tax of $12,000 for 9,000 hours of production. The department actually completed 11,200 hours of production. Determine the budget for the department, assuming that it uses flexible budgeting.

OBJ. 2 **EE 22-1** p. 1022

PE 22-1B Flexible budgeting

At the beginning of the period, the Fabricating Department budgeted direct labor of $6,500 and equipment depreciation of $2,000 for 400 hours of production. The department actually completed 500 hours of production. Determine the budget for the department, assuming that it uses flexible budgeting.

OBJ. 4 **EE 22-2** p. 1026

PE 22-2A Production budget

MyLife Publishers Inc. projected sales of 165,000 diaries for 2012. The estimated January 1, 2012, inventory is 24,200 units, and the desired December 31, 2012, inventory is 18,200 units. What is the budgeted production (in units) for 2012?

OBJ. 4 **EE 22-2** p. 1026

PE 22-2B Production budget

Confederate Candle Co. projected sales of 64,000 candles for 2012. The estimated January 1, 2012, inventory is 2,900 units, and the desired December 31, 2012, inventory is 3,200 units. What is the budgeted production (in units) for 2012?

OBJ. 4 **EE 22-3** p. 1028

PE 22-3A Direct materials purchases budget

MyLife Publishers Inc. budgeted production of 159,000 diaries in 2012. Paper is required to produce a diary. Assume eight square yards of paper are required for each diary. The estimated January 1, 2012, paper inventory is 30,500 square yards. The desired December 31, 2012, paper inventory is 27,000 square yards. If paper costs $0.70 per square yard, determine the direct materials purchases budget for 2012.

OBJ. 4 **EE 22-3** p. 1028

PE 22-3B Direct materials purchases budget

Confederate Candle Co. budgeted production of 64,300 candles in 2012. Wax is required to produce a candle. Assume eight ounces (one-half of a pound) of wax is required for each candle. The estimated January 1, 2012, wax inventory is 3,000 pounds. The desired December 31, 2012, wax inventory is 3,200 pounds. If candle wax costs $3.60 per pound, determine the direct materials purchases budget for 2012.

OBJ. 4 **EE 22-4** p. 1029

PE 22-4A Direct labor cost budget

MyLife Publishers Inc. budgeted production of 159,000 diaries in 2012. Each diary requires assembly. Assume that 12 minutes are required to assemble each diary. If assembly labor costs $14.50 per hour, determine the direct labor cost budget for 2012.

Learning Objectives *Example Exercises*

OBJ. 4 EE 22-4 *p. 1029*

PE 22-4B Direct labor cost budget

Confederate Candle Co. budgeted production of 64,300 candles in 2012. Each candle requires molding. Assume that 15 minutes are required to mold each candle. If molding labor costs $13.00 per hour, determine the direct labor cost budget for 2012.

OBJ. 4 EE 22-5 *p. 1031*

PE 22-5A Cost of goods sold budget

Prepare a cost of goods sold budget for MyLife Publishers Inc. using the information in Practice Exercises 22-3A and 22-4A. Assume the estimated inventories on January 1, 2012, for finished goods and work in process were $32,000 and $15,000, respectively. Also assume the desired inventories on December 31, 2012, for finished goods and work in process were $34,500 and $14,000, respectively. Factory overhead was budgeted at $225,000.

OBJ. 4 EE 22-5 *p. 1031*

PE 22-5B Cost of goods sold budget

Prepare a cost of goods sold budget for Confederate Candle Co. using the information in Practice Exercises 22-3B and 22-4B. Assume the estimated inventories on January 1, 2012, for finished goods and work in process were $11,500 and $3,200, respectively. Also assume the desired inventories on December 31, 2012, for finished goods and work in process were $7,200 and $4,000, respectively. Factory overhead was budgeted at $116,000.

OBJ. 5 EE 22-6 *p. 1035*

PE 22-6A Cash budget

MyLife Publishers Inc. collects 25% of its sales on account in the month of the sale and 75% in the month following the sale. If sales on account are budgeted to be $340,000 for April and $300,000 for May, what are the budgeted cash receipts from sales on account for May?

OBJ. 5 EE 22-6 *p. 1035*

PE 22-6B Cash budget

Confederate Candle Co. pays 20% of its purchases on account in the month of the purchase and 80% in the month following the purchase. If purchases are budgeted to be $18,000 for October and $19,500 for November, what are the budgeted cash payments for purchases on account for November?

Exercises

OBJ. 2, 5

✓ a. December 31cash balance, $3,600

EX 22-1 Personal budget

At the beginning of the 2012 school year, Candace Thompson decided to prepare a cash budget for the months of September, October, November, and December. The budget must plan for enough cash on December 31 to pay the spring semester tuition, which is the same as the fall tuition. The following information relates to the budget:

Cash balance, September 1 (from a summer job)	$6,500
Purchase season football tickets in September	120
Additional entertainment for each month	270
Pay fall semester tuition in September	4,000
Pay rent at the beginning of each month	250
Pay for food each month	175
Pay apartment deposit on September 2 (to be returned Dec. 15)	500
Part-time job earnings each month (net of taxes)	1,000

a. Prepare a cash budget for September, October, November, and December.

b. Are the four monthly budgets that are presented prepared as static budgets or flexible budgets?

c. What are the budget implications for Candace Thompson?

OBJ. 2, 4

✔ Total selling and administrative expenses at $125,000 sales, $69,250

EX 22-2 Flexible budget for selling and administrative expenses

Net Vision uses flexible budgets that are based on the following data:

Sales commissions	10% of sales
Advertising expense	18% of sales
Miscellaneous selling expense	$2,800 per month plus 4% of sales
Office salaries expense	$18,000 per month
Office supplies expense	3% of sales
Miscellaneous administrative expense	$2,200 per month plus 2% of sales

Prepare a flexible selling and administrative expenses budget for January 2012 for sales volumes of $100,000, $125,000, and $150,000. (Use Exhibit 5 as a model.)

OBJ. 2, 4

✔ b. Excess of actual over budget for March, $14,800

EX 22-3 Static budget vs. flexible budget

The production supervisor of the Machining Department for Cramer Company agreed to the following monthly static budget for the upcoming year:

Cramer Company
Machining Department
Monthly Production Budget

Wages	$552,000
Utilities	48,300
Depreciation	60,000
Total	$660,300

The actual amount spent and the actual units produced in the first three months of 2012 in the Machining Department were as follows:

	Amount Spent	Units Produced
January	$545,000	90,000
February	595,000	100,000
March	649,000	110,000

The Machining Department supervisor has been very pleased with this performance, since actual expenditures have been less than the monthly budget. However, the plant manager believes that the budget should not remain fixed for every month but should "flex" or adjust to the volume of work that is produced in the Machining Department. Additional budget information for the Machining Department is as follows:

Wages per hour	$16.00
Utility cost per direct labor hour	$1.40
Direct labor hours per unit	0.30
Planned monthly unit production	115,000

a. Prepare a flexible budget for the actual units produced for January, February, and March in the Machining Department. Assume depreciation is a fixed cost.

b. Compare the flexible budget with the actual expenditures for the first three months. What does this comparison suggest?

OBJ. 2

✔ Total department cost at 12,000 units, $1,377,800

EX 22-4 Flexible budget for Fabrication Department

Steelcase Inc. is one of the largest manufacturers of office furniture in the United States. In Grand Rapids, Michigan, it produces filing cabinets in two departments: Fabrication and Trim Assembly. Assume the following information for the Fabrication Department:

Steel per filing cabinet	50 pounds
Direct labor per filing cabinet	18 minutes
Supervisor salaries	$160,000 per month
Depreciation	$25,000 per month
Direct labor rate	$23 per hour
Steel cost	$1.85 per pound

Prepare a flexible budget for 12,000, 15,000, and 18,000 filing cabinets for the month of October 2012, similar to Exhibit 5, assuming that inventories are not significant.

OBJ. 4

✔ Small scale budgeted production, 59,600 units

EX 22-5 Production budget

Rite Weight, Inc. produces a small and large version of its popular electronic scale. The anticipated unit sales for the scales by sales region are as follows:

	Small Scale	Large Scale
North Region unit sales	29,000	46,000
South Region unit sales	31,000	55,000
Total	60,000	101,000

The finished goods inventory estimated for May 1, 2013, for the small and large scale models is 1,500 and 2,300 units, respectively. The desired finished goods inventory for May 31, 2013, for the small and large scale models is 1,100 and 2,500 units, respectively.

Prepare a production budget for the small and large scales for the month ended May 31, 2013.

OBJ. 4

✔ b. Model DL total production, 3,415 units

EX 22-6 Sales and production budgets

Audio Mechanics, Inc. manufactures two models of speakers, DL and XL. Based on the following production and sales data for September 2012, prepare (a) a sales budget and (b) a production budget.

	DL	XL
Estimated inventory (units), September 1	250	60
Desired inventory (units), September 30	275	48
Expected sales volume (units):		
East Region	1,850	820
West Region	1,540	710
Unit sales price	$145	$210

OBJ. 4

✔ Total professional fees earned, $7,784,000

EX 22-7 Professional fees earned budget

Perez and Ford, CPAs, offer three types of services to clients: auditing, tax, and small business accounting. Based on experience and projected growth, the following billable hours have been estimated for the year ending December 31, 2012:

	Billable Hours
Audit Department:	
Staff	19,200
Partners	6,200
Tax Department:	
Staff	12,300
Partners	4,100
Small Business Accounting Department:	
Staff	4,900
Partners	1,900

The average billing rate for staff is $120 per hour, and the average billing rate for partners is $280 per hour. Prepare a professional fees earned budget for Perez and Ford, CPAs, for the year ending December 31, 2012, using the following column headings and showing the estimated professional fees by type of service rendered:

Billable Hours	Hourly Rate	Total Revenue

OBJ. 4

✓ Staff total labor cost, $1,456,000

EX 22-8 Professional labor cost budget

Based on the data in Exercise 22-7 and assuming that the average compensation per hour for staff is $40 and for partners is $150, prepare a professional labor cost budget for each department for Perez and Ford, CPAs, for the year ending December 31, 2012. Use the following column headings:

Staff	Partners

OBJ. 4

✓ Total cheese purchases, $43,904

EX 22-9 Direct materials purchases budget

Romano's Frozen Pizza Inc. has determined from its production budget the following estimated production volumes for 12" and 16" frozen pizzas for June 2012:

	Units	
	12" Pizza	16" Pizza
Budgeted production volume	5,200	9,400

There are three direct materials used in producing the two types of pizza. The quantities of direct materials expected to be used for each pizza are as follows:

	12" Pizza	16" Pizza
Direct materials:		
Dough	0.90 lb. per unit	1.50 lbs. per unit
Tomato	0.60	1.00
Cheese	0.75	1.25

In addition, Romano's has determined the following information about each material:

	Dough	Tomato	Cheese
Estimated inventory, June 1, 2012	580 lbs.	210 lbs.	325 lbs.
Desired inventory, June 30, 2012	640 lbs.	200 lbs.	355 lbs.
Price per pound	$1.10	$2.60	$2.80

Prepare June's direct materials purchases budget for Romano's Frozen Pizza Inc.

OBJ. 4

✓ Concentrate budgeted purchases, $79,560

EX 22-10 Direct materials purchases budget

Coca-Cola Enterprises is the largest bottler of Coca-Cola® in Western Europe. The company purchases Coke® and Sprite® concentrate from The Coca-Cola Company, dilutes and mixes the concentrate with carbonated water, and then fills the blended beverage into cans or plastic two-liter bottles. Assume that the estimated production for Coke and Sprite two-liter bottles at the Wakefield, UK, bottling plant are as follows for the month of March:

Coke	143,000 two-liter bottles
Sprite	104,000 two-liter bottles

In addition, assume that the concentrate costs $90 per pound for both Coke and Sprite and is used at a rate of 0.2 pound per 100 liters of carbonated water in blending Coke and 0.15 pound per 100 liters of carbonated water in blending Sprite. Assume that two liters of carbonated water are used for each two-liter bottle of finished product. Assume further that two-liter bottles cost $0.10 per bottle and carbonated water costs $0.08 per liter.

Prepare a direct materials purchases budget for March 2012, assuming no changes between beginning and ending inventories for concentrate, bottles, and carbonated water.

OBJ. 4

✓ Total steel belt purchases, $1,701,000

EX 22-11 Direct materials purchases budget

Anticipated sales for Safe Ride Tire Company were 36,000 passenger car tires and 16,000 truck tires. Beginning and ending finished goods inventories for both products were negligible, and thus were omitted from the sales budget. Rubber and steel belts are used in producing passenger car and truck tires according to the following table:

	Passenger Car	Truck
Rubber	30 lbs. per unit	70 lbs. per unit
Steel belts	6 lbs. per unit	10 lbs. per unit

The purchase prices of rubber and steel are $3.60 and $4.50 per pound, respectively. The desired ending inventories of rubber and steel belts are 40,000 and 10,000 pounds, respectively. The estimated beginning inventories for rubber and steel belts are 46,000 and 8,000 pounds, respectively.

Prepare a direct materials purchases budget for Safe Ride Tire Company for the year ended December 31, 2012.

OBJ. 4

✔ Total direct labor cost, Assembly, $72,300

EX 22-12 Direct labor cost budget

Ace Racket Company manufactures two types of tennis rackets, the Junior and Pro Striker models. The production budget for May for the two rackets is as follows:

	Junior	Pro Striker
Production budget	1,400 units	7,100 units

Both rackets are produced in two departments, Forming and Assembly. The direct labor hours required for each racket are estimated as follows:

	Forming Department	Assembly Department
Junior	0.30 hour per unit	0.40 hour per unit
Pro Striker	0.35 hour per unit	0.60 hour per unit

The direct labor rate for each department is as follows:

Forming Department	$18.00 per hour
Assembly Department	$15.00 per hour

Prepare the direct labor cost budget for May 2012.

OBJ. 4

✔ Average weekday total, $1,800

EX 22-13 Direct labor budget—service business

Executive Inn, Inc., operates a downtown hotel property that has 200 rooms. On average, 90% of Executive Inn's rooms are occupied on weekdays, and 60% are occupied during the weekend. The manager has asked you to develop a direct labor budget for the housekeeping and restaurant staff for weekdays and weekends. You have determined that the housekeeping staff requires 30 minutes to clean each occupied room. The housekeeping staff is paid $12 per hour. The restaurant has six full-time staff (eight-hour day) on duty, regardless of occupancy. However, for every 60 occupied rooms, an additional person is brought in to work in the restaurant for the eight-hour day. The restaurant staff is paid $10 per hour.

Determine the estimated housekeeping, restaurant, and total direct labor cost for an average weekday and average weekend day. Format the budget in two columns, labeled as weekday and weekend day.

OBJ. 4

✔ a. Total production of 501 Jeans, 45,000

EX 22-14 Production and direct labor cost budgets

Levi Strauss & Co. manufactures slacks and jeans under a variety of brand names, such as Dockers® and 501 Jeans®. Slacks and jeans are assembled by a variety of different sewing operations. Assume that the sales budget for Dockers and 501 Jeans shows estimated sales of 20,500 and 44,200 pairs, respectively, for March 2012. The finished goods inventory is assumed as follows:

	Dockers	501 Jeans
March 1 estimated inventory	980	1,590
March 31 desired inventory	480	2,390

Assume the following direct labor data per 10 pairs of Dockers and 501 Jeans for four different sewing operations:

	Direct Labor per 10 Pairs	
	Dockers	**501 Jeans**
Inseam	18 minutes	12 minutes
Outerseam	21	15
Pockets	6	9
Zipper	12	6
Total	57 minutes	42 minutes

a. Prepare a production budget for March. Prepare the budget in two columns: Dockers® and 501 Jeans®.

b. Prepare the March direct labor cost budget for the four sewing operations, assuming a $13 wage per hour for the inseam and outerseam sewing operations and a $15 wage per hour for the pocket and zipper sewing operations. Prepare the direct labor cost budget in four columns: inseam, outerseam, pockets, and zipper.

OBJ. 4

✔ Total variable factory overhead costs, $242,000

EX 22-15 Factory overhead cost budget

Blondie Candy Company budgeted the following costs for anticipated production for July 2012:

Advertising expenses	$245,000	Production supervisor wages	$126,000
Manufacturing supplies	12,000	Production control wages	29,000
Power and light	41,000	Executive officer salaries	272,000
Sales commissions	285,000	Materials management wages	34,000
Factory insurance	25,000	Factory depreciation	20,000

Prepare a factory overhead cost budget, separating variable and fixed costs. Assume that factory insurance and depreciation are the only fixed factory costs.

OBJ. 4

✔ Cost of goods sold, $2,954,700

EX 22-16 Cost of goods sold budget

Dover Chemical Company uses oil to produce two types of plastic products, P1 and P2. Dover budgeted 30,000 barrels of oil for purchase in April for $78 per barrel. Direct labor budgeted in the chemical process was $240,000 for April. Factory overhead was budgeted $375,000 during April. The inventories on April 1 were estimated to be:

Oil	$15,800
P1	9,800
P2	8,900
Work in process	12,100

The desired inventories on April 30 were:

Oil	$16,100
P1	9,400
P2	7,900
Work in process	13,500

Use the preceding information to prepare a cost of goods sold budget for April 2013.

OBJ. 4

✔ Cost of goods sold, $449,690

EX 22-17 Cost of goods sold budget

The controller of Oriental Ceramics Inc. wishes to prepare a cost of goods sold budget for June. The controller assembled the following information for constructing the cost of goods sold budget:

Direct materials:	**Enamel**	**Paint**	**Porcelain**	**Total**
Total direct materials purchases budgeted for June	$33,840	$6,940	$134,200	$174,980
Estimated inventory, June 1, 2012	1,150	2,800	4,620	8,570
Desired inventory, June 30, 2012	2,550	2,310	6,000	10,860

Direct labor cost:	**Kiln Department**	**Decorating Department**	**Total**
Total direct labor cost budgeted for June	$44,700	$132,500	$177,200

Finished goods inventories:	**Dish**	**Bowl**	**Figurine**	**Total**
Estimated inventory, June 1, 2012	$5,240	$2,970	$2,470	$10,680
Desired inventory, June 30, 2012	3,350	4,150	3,920	11,420

Work in process inventories:	
Estimated inventory, June 1, 2012	$3,200
Desired inventory, June 30, 2012	1,760

Budgeted factory overhead costs for June:	
Indirect factory wages	$77,900
Depreciation of plant and equipment	12,600
Power and light	4,900
Indirect materials	3,700
Total	$99,100

Use the preceding information to prepare a cost of goods sold budget for June 2012.

OBJ. 5

✓ Total cash collected in May, $191,400

EX 22-18 Schedule of cash collections of accounts receivable

Pet Mart Wholesale Inc., a pet wholesale supplier, was organized on March 1, 2012. Projected sales for each of the first three months of operations are as follows:

March	$ 90,000
April	150,000
May	240,000

The company expects to sell 10% of its merchandise for cash. Of sales on account, 50% are expected to be collected in the month of the sale, 35% in the month following the sale, and the remainder in the second month following the sale.

Prepare a schedule indicating cash collections from sales for March, April, and May.

OBJ. 5

✓ Total cash collected in August, $128,000

EX 22-19 Schedule of cash collections of accounts receivable

Office Universe Supplies Inc. has "cash and carry" customers and credit customers. Office Universe estimates that 25% of monthly sales are to cash customers, while the remaining sales are to credit customers. Of the credit customers, 20% pay their accounts in the month of sale, while the remaining 80% pay their accounts in the month following the month of sale. Projected sales for the next three months of 2012 are as follows:

August	$120,000
September	150,000
October	220,000

The Accounts Receivable balance on July 31, 2012, was $80,000.

Prepare a schedule of cash collections from sales for August, September, and October.

OBJ. 5

✓ Total cash payments in December, $73,940

EX 22-20 Schedule of cash payments

Sage Learning Systems Inc. was organized on September 30, 2012. Projected selling and administrative expenses for each of the first three months of operations are as follows:

October	$67,500
November	75,200
December	88,100

Depreciation, insurance, and property taxes represent $9,000 of the estimated monthly expenses. The annual insurance premium was paid on September 30, and property taxes for the year will be paid in June. Sixty percent of the remainder of the expenses are expected to be paid in the month in which they are incurred, with the balance to be paid in the following month.

Prepare a schedule indicating cash payments for selling and administrative expenses for October, November, and December.

OBJ. 5

✔ Total cash payments in September, $141,760

EX 22-21 Schedule of cash payments

Select Physical Therapy Inc. is planning its cash payments for operations for the third quarter (July–September), 2013. The Accrued Expenses Payable balance on July 1 is $28,000. The budgeted expenses for the next three months are as follows:

	July	August	September
Salaries	$ 63,200	$ 78,100	$ 84,900
Utilities	5,300	5,600	7,100
Other operating expenses	48,500	52,700	58,200
Total	$117,000	$136,400	$150,200

Other operating expenses include $3,500 of monthly depreciation expense and $800 of monthly insurance expense that was prepaid for the year on March 1 of the current year. Of the remaining expenses, 70% are paid in the month in which they are incurred, with the remainder paid in the following month. The Accrued Expenses Payable balance on July 1 relates to the expenses incurred in June.

Prepare a schedule of cash payments for operations for July, August, and September.

OBJ. 5

✔ Total capital expenditures in 2012, $5,500,000

EX 22-22 Capital expenditures budget

On January 1, 2012, the controller of Med-Tek Inc. is planning capital expenditures for the years 2012–2015. The following interviews helped the controller collect the necessary information for the capital expenditures budget:

Director of Facilities: A construction contract was signed in late 2011 for the construction of a new factory building at a contract cost of $9,000,000. The construction is scheduled to begin in 2012 and be completed in 2013.

Vice President of Manufacturing: Once the new factory building is finished, we plan to purchase $1.2 million in equipment in late 2013. I expect that an additional $150,000 will be needed early in the following year (2014) to test and install the equipment before we can begin production. If sales continue to grow, I expect we'll need to invest another $900,000 in equipment in 2015.

Vice President of Marketing: We have really been growing lately. I wouldn't be surprised if we need to expand the size of our new factory building in 2015 by at least 40%. Fortunately, we expect inflation to have minimal impact on construction costs over the next four years. Additionally, I would expect the cost of the expansion to be proportional to the size of the expansion.

Director of Information Systems: We need to upgrade our information systems to wireless network technology. It doesn't make sense to do this until after the new factory building is completed and producing product. During 2014, once the factory is up and running, we should equip the whole facility with wireless technology. I think it would cost us $1,200,000 today to install the technology. However, prices have been dropping by 25% per year, so it should be less expensive at a later date.

President: I am excited about our long-term prospects. My only short-term concern is financing the $5,500,000 of construction costs on the portion of the new factory building scheduled to be completed in 2012.

Use the interview information above to prepare a capital expenditures budget for Med-Tek Inc. for the years 2012–2015.

Problems Series A

OBJ. 4

✔ 3. Total revenue from sales, $855,111

PR 22-1A Forecast sales volume and sales budget

Da Vinci Frame Company prepared the following sales budget for the current year:

Da Vinci Frame Company
Sales Budget
For the Year Ending December 31, 2012

Product and Area	Unit Sales Volume	Unit Selling Price	Total Sales
8" × 10" Frame:			
East	9,400	$15.00	$141,000
Central	6,900	15.00	103,500
West	13,200	15.00	198,000
Total	29,500		$442,500

12" × 16" Frame:			
East	4,200	$25.00	$105,000
Central	3,100	25.00	77,500
West	5,900	25.00	147,500
Total	13,200		$330,000
Total revenue from sales			$772,500

At the end of December 2012, the following unit sales data were reported for the year:

	Unit Sales	
	8" × 10" Frame	12" × 16" Frame
East	9,870	4,116
Central	7,107	3,224
West	13,068	6,018

For the year ending December 31, 2013, unit sales are expected to follow the patterns established during the year ending December 31, 2012. The unit selling price for the 8" × 10" frame is expected to increase to $16 and the unit selling price for the 12" × 16" frame is expected to increase to $27, effective January 1, 2013.

Instructions

1. Compute the increase or decrease of actual unit sales for the year ended December 31, 2012, over budget. Place your answers in a columnar table with the following format:

	Unit Sales, Year Ended 2012		Increase (Decrease) Actual Over Budget	
	Budget	Actual Sales	Amount	Percent
8" × 10" Frame:				
East				
Central				
West				
12" × 16" Frame:				
East				
Central				
West				

2. Assuming that the increase or decrease in actual sales to budget indicated in part (1) is to continue in 2013, compute the unit sales volume to be used for preparing the sales budget for the year ending December 31, 2013. Place your answers in a columnar table similar to that in part (1) above but with the following column heads. Round budgeted units to the nearest unit.

2012 Actual Units	Percentage Increase (Decrease)	2013 Budgeted Units (rounded)

3. Prepare a sales budget for the year ending December 31, 2013.

OBJ. 4

✓ 3. Total direct materials purchases, $939,065

PR 22-2A Sales, production, direct materials purchases, and direct labor cost budgets

The budget director of Outdoor Chef Grill Company requests estimates of sales, production, and other operating data from the various administrative units every month. Selected information concerning sales and production for May 2012 is summarized as follows:

a. Estimated sales for May by sales territory:

Maine:	
Backyard Chef	280 units at $750 per unit
Master Chef	250 units at $1,500 per unit
Vermont:	
Backyard Chef	210 units at $800 per unit
Master Chef	160 units at $1,600 per unit
New Hampshire:	
Backyard Chef	305 units at $850 per unit
Master Chef	275 units at $1,700 per unit

b. Estimated inventories at May 1:

Direct materials:	
Grates	300 units
Stainless steel	1,800 lbs.
Burner subassemblies	150 units
Shelves	300 units

Finished products:	
Backyard Chef	36 units
Master Chef	18 units

c. Desired inventories at May 31:

Direct materials:	
Grates	320 units
Stainless steel	2,100 lbs.
Burner subassemblies	135 units
Shelves	285 units

Finished products:	
Backyard Chef	31 units
Master Chef	23 units

d. Direct materials used in production:

In manufacture of Backyard Chef:	
Grates	3 units per unit of product
Stainless steel	24 lbs. per unit of product
Burner subassemblies	2 units per unit of product
Shelves	4 units per unit of product
In manufacture of Master Chef:	
Grates	6 units per unit of product
Stainless steel	42 lbs. per unit of product
Burner subassemblies	4 units per unit of product
Shelves	5 units per unit of product

e. Anticipated purchase price for direct materials:

Grates	$16 per unit	Burner subassemblies	$125 per unit
Stainless steel	$5 per lb.	Shelves	$8 per unit

f. Direct labor requirements:

Backyard Chef:	
Stamping Department	0.60 hr. at $17 per hr.
Forming Department	0.80 hr. at $14 per hr.
Assembly Department	2.0 hrs. at $12 per hr.
Master Chef:	
Stamping Department	0.80 hr. at $17 per hr.
Forming Department	1.50 hrs. at $14 per hr.
Assembly Department	2.50 hrs. at $12 per hr.

Instructions

1. Prepare a sales budget for May.
2. Prepare a production budget for May.
3. Prepare a direct materials purchases budget for May.
4. Prepare a direct labor cost budget for May.

OBJ. 4

✔ 4. Total direct labor cost in Fabrication Dept., $32,760

PR 22-3A Budgeted income statement and supporting budgets

The budget director of Feathered Friends Inc., with the assistance of the controller, treasurer, production manager, and sales manager, has gathered the following data for use in developing the budgeted income statement for October 2012:

a. Estimated sales for October:

Bird house	3,500 units at $45 per unit
Bird feeder	3,700 units at $65 per unit

b. Estimated inventories at October 1:

Direct materials:		Finished products:	
Wood	240 ft.	Bird house	300 units at $22 per unit
Plastic	360 lbs.	Bird feeder.	200 units at $33 per unit

c. Desired inventories at October 31:

Direct materials:		Finished products:	
Wood	290 ft.	Bird house	360 units at $22 per unit
Plastic	340 lbs.	Bird feeder.	180 units at $34 per unit

d. Direct materials used in production:

In manufacture of Bird House:		In manufacture of Bird Feeder:	
Wood	0.80 ft. per unit of product	Wood	1.20 ft. per unit of product
Plastic	0.50 lb. per unit of product	Plastic	0.75 lb. per unit of product

e. Anticipated cost of purchases and beginning and ending inventory of direct materials:

Wood	$6.00 per ft.	Plastic	$0.80 per lb.

f. Direct labor requirements:

Bird House:	
Fabrication Department	0.20 hr. at $15 per hr.
Assembly Department	0.30 hr. at $11 per hr.
Bird Feeder:	
Fabrication Department	0.40 hr. at $15 per hr.
Assembly Department	0.35 hr. at $11 per hr.

g. Estimated factory overhead costs for October:

Indirect factory wages	$70,000	Power and light	$5,000
Depreciation of plant and equipment	18,000	Insurance and property tax	2,500

h. Estimated operating expenses for October:

Sales salaries expense	$65,000
Advertising expense	15,000
Office salaries expense	22,000
Depreciation expense—office equipment	500
Telephone expense—selling	450
Telephone expense—administrative	150
Travel expense—selling	3,700
Office supplies expense	350
Miscellaneous administrative expense	500

i. Estimated other income and expense for October:

Interest revenue	$170
Interest expense	118

j. Estimated tax rate: 30%

Instructions

1. Prepare a sales budget for October.
2. Prepare a production budget for October.
3. Prepare a direct materials purchases budget for October.
4. Prepare a direct labor cost budget for October.
5. Prepare a factory overhead cost budget for October.
6. Prepare a cost of goods sold budget for October. Work in process at the beginning of October is estimated to be $27,000, and work in process at the end of October is estimated to be $32,400.
7. Prepare a selling and administrative expenses budget for October.
8. Prepare a budgeted income statement for October.

OBJ. 5

✔ 1. May deficiency, $5,130

PR 22-4A Cash budget

The controller of Santa Fe Housewares Inc. instructs you to prepare a monthly cash budget for the next three months. You are presented with the following budget information:

	March	April	May
Sales	$70,000	$84,000	$92,000
Manufacturing costs	32,000	39,000	42,500
Selling and administrative expenses	12,000	18,000	21,000
Capital expenditures			20,000

The company expects to sell about 10% of its merchandise for cash. Of sales on account, 70% are expected to be collected in full in the month following the sale and the remainder the following month. Depreciation, insurance, and property tax expense represent $3,000 of the estimated monthly manufacturing costs. The annual insurance premium is paid in July, and the annual property taxes are paid in November. Of the remainder of the manufacturing costs, 80% are expected to be paid in the month in which they are incurred and the balance in the following month.

Current assets as of March 1 include cash of $10,000, marketable securities of $40,000, and accounts receivable of $75,600 ($60,000 from February sales and $15,600 from January sales). Sales on account for January and February were $52,000 and $60,000, respectively. Current liabilities as of March 1 include a $12,000, 15%, 90-day note payable due May 20 and $4,000 of accounts payable incurred in February for manufacturing costs. All selling and administrative expenses are paid in cash in the period they are incurred. It is expected that $1,800 in dividends will be received in March. An estimated income tax payment of $16,000 will be made in April. Santa Fe's regular quarterly dividend of $3,000 is expected to be declared in April and paid in May. Management desires to maintain a minimum cash balance of $30,000.

Instructions

1. Prepare a monthly cash budget and supporting schedules for March, April, and May.
2. On the basis of the cash budget prepared in part (1), what recommendation should be made to the controller?

OBJ. 4, 5

✔ 1. Budgeted net income, $44,800

PR 22-5A Budgeted income statement and balance sheet

As a preliminary to requesting budget estimates of sales, costs, and expenses for the fiscal year beginning January 1, 2013, the following tentative trial balance as of December 31, 2012, is prepared by the Accounting Department of Tahiti Blossom Soap Co.:

Cash	$100,000	
Accounts Receivable	112,300	
Finished Goods	76,700	
Work in Process	24,300	
Materials	54,100	
Prepaid Expenses	3,400	
Plant and Equipment	295,000	
Accumulated Depreciation—Plant and Equipment		$140,400
Accounts Payable		59,000
Common Stock, $10 par		210,000
Retained Earnings		256,400
	$665,800	$665,800

Factory output and sales for 2013 are expected to total 160,000 units of product, which are to be sold at $4.50 per unit. The quantities and costs of the inventories at December 31, 2013, are expected to remain unchanged from the balances at the beginning of the year.

Budget estimates of manufacturing costs and operating expenses for the year are summarized as follows:

	Estimated Costs and Expenses	
	Fixed (Total for Year)	Variable (Per Unit Sold)
Cost of goods manufactured and sold:		
Direct materials	—	$0.90
Direct labor	—	0.55
Factory overhead:		
Depreciation of plant and equipment	$45,000	—
Other factory overhead	8,000	0.35
Selling expenses:		
Sales salaries and commissions	37,000	0.40
Advertising	55,000	—
Miscellaneous selling expense	5,000	0.20
Administrative expenses:		
Office and officers salaries	58,200	0.15
Supplies	4,000	0.08
Miscellaneous administrative expense	3,000	0.12

Balances of accounts receivable, prepaid expenses, and accounts payable at the end of the year are not expected to differ significantly from the beginning balances. Federal income tax of $20,000 on 2013 taxable income will be paid during 2013. Regular quarterly cash dividends of $0.10 per share are expected to be declared and paid in March, June, September, and December on 21,000 shares of common stock outstanding. It is anticipated that fixed assets will be purchased for $60,000 cash in May.

Instructions

1. Prepare a budgeted income statement for 2013.
2. Prepare a budgeted balance sheet as of December 31, 2013, with supporting calculations.

Problems Series B

OBJ. 4

✔ 3. Total revenue from sales, $20,373,510

PR 22-1B Forecast sales volume and sales budget

Alert Systems Inc. prepared the following sales budget for the current year:

Alert Systems Inc.
Sales Budget
For the Year Ending December 31, 2012

Product and Area	Unit Sales Volume	Unit Selling Price	Total Sales
Home Alert System:			
United States	18,900	$250	$ 4,725,000
Europe	5,400	250	1,350,000
Asia	4,500	250	1,125,000
Total	28,800		$ 7,200,000
Business Alert System:			
United States	9,500	$800	$ 7,600,000
Europe	3,200	800	2,560,000
Asia	2,700	800	2,160,000
Total	15,400		$12,320,000
Total revenue from sales			$19,520,000

At the end of December 2012, the following unit sales data were reported for the year:

	Unit Sales	
	Home Alert System	Business Alert System
United States	19,845	9,880
Europe	5,292	3,264
Asia	4,545	2,619

For the year ending December 31, 2013, unit sales are expected to follow the patterns established during the year ending December 31, 2012. The unit selling price for the Home Alert System is expected to increase to $270, and the unit selling price for the Business Alert System is expected to be decreased to $750, effective January 1, 2013.

Instructions

1. Compute the increase or decrease of actual unit sales for the year ended December 31, 2012, over budget. Place your answers in a columnar table with the following format:

	Unit Sales, Year Ended 2012		Increase (Decrease) Actual Over Budget	
	Budget	Actual Sales	Amount	Percent
Home Alert System:				
United States				
Europe				
Asia				
Business Alert System:				
United States				
Europe				
Asia				

2. Assuming that the increase or decrease in actual sales to budget indicated in part (1) is to continue in 2013, compute the unit sales volume to be used for preparing the sales budget for the year ending December 31, 2013. Place your answers in a columnar table similar to that in part (1) above but with the following column heads. Round budgeted units to the nearest unit.

2012 Actual Units	Percentage Increase (Decrease)	2013 Budgeted Units (rounded)

3. Prepare a sales budget for the year ending December 31, 2013.

OBJ. 4

✓ 3. Total direct materials purchases, $9,234,648

PR 22-2B Sales, production, direct materials purchases, and direct labor cost budgets

The budget director of Monarch Furniture Company requests estimates of sales, production, and other operating data from the various administrative units every month. Selected information concerning sales and production for November 2012 is summarized as follows:

a. Estimated sales of King and Prince chairs for November by sales territory:

Northern Domestic:	
King.	5,800 units at $750 per unit
Prince	7,200 units at $570 per unit
Southern Domestic:	
King.	3,600 units at $690 per unit
Prince	4,100 units at $580 per unit
International:	
King.	1,750 units at $780 per unit
Prince	1,100 units at $610 per unit

b. Estimated inventories at November 1:

Direct materials:		Finished products:	
Fabric	4,500 sq. yds.	King.	950 units
Wood	6,000 linear ft.	Prince	280 units
Filler	2,800 cu. ft.		
Springs.	6,700 units		

c. Desired inventories at November 30:

Direct materials:		Finished products:	
Fabric	4,100 sq. yds.	King	900 units
Wood	6,200 linear ft.	Prince	400 units
Filler	3,100 cu. ft.		
Springs	7,200 units		

d. Direct materials used in production:

In manufacture of King:	
Fabric	6.0 sq. yds. per unit of product
Wood	38 linear ft. per unit of product
Filler	4.2 cu. ft. per unit of product
Springs	16 units per unit of product
In manufacture of Prince:	
Fabric	4.0 sq. yds. per unit of product
Wood	26 linear ft. per unit of product
Filler	3.4 cu. ft. per unit of product
Springs	12 units per unit of product

e. Anticipated purchase price for direct materials:

Fabric	$14.00 per sq. yd.	Filler	$3.50 per cu. ft.
Wood	8.00 per linear ft.	Springs	4.00 per unit

f. Direct labor requirements:

King:	
Framing Department	2.6 hrs. at $12 per hr.
Cutting Department	1.4 hrs. at $11 per hr.
Upholstery Department	2.2 hrs. at $15 per hr.
Prince:	
Framing Department	2.0 hrs. at $12 per hr.
Cutting Department	0.5 hr. at $11 per hr.
Upholstery Department	1.8 hrs. at $15 per hr.

Instructions

1. Prepare a sales budget for November.
2. Prepare a production budget for November.
3. Prepare a direct materials purchases budget for November.
4. Prepare a direct labor cost budget for November.

OBJ. 4

✔ 4. Total direct labor cost in Assembly Dept., $7,358

PR 22-3B Budgeted income statement and supporting budgets

The budget director of Hi Performance Athletic Co., with the assistance of the controller, treasurer, production manager, and sales manager, has gathered the following data for use in developing the budgeted income statement for January 2012:

a. Estimated sales for January:

Batting helmet	305 units at $70 per unit
Football helmet	630 units at $135 per unit

b. Estimated inventories at January 1:

Direct materials:		Finished products:	
Plastic	80 lbs.	Batting helmet	35 units at $40 per unit
Foam lining	60 lbs.	Football helmet	40 units at $60 per unit

c. Desired inventories at January 31:

Direct materials:		Finished products:	
Plastic	90 lbs.	Batting helmet	30 units at $40 per unit
Foam lining	55 lbs.	Football helmet	50 units at $58 per unit

d. Direct materials used in production:

In manufacture of batting helmet:	
Plastic	1.20 lbs. per unit of product
Foam lining	0.50 lb. per unit of product
In manufacture of football helmet:	
Plastic	2.80 lbs. per unit of product
Foam lining	1.40 lbs. per unit of product

e. Anticipated cost of purchases and beginning and ending inventory of direct materials:

Plastic	$5.50 per lb.
Foam lining	$4.00 per lb.

f. Direct labor requirements:

Batting helmet:	
Molding Department	0.20 hr. at $15 per hr.
Assembly Department	0.50 hr. at $13 per hr.
Football helmet:	
Molding Department	0.30 hr. at $15 per hr.
Assembly Department	0.65 hr. at $13 per hr.

g. Estimated factory overhead costs for January:

Indirect factory wages	$14,500	Power and light	$2,000
Depreciation of plant and equipment	4,200	Insurance and property tax	1,700

h. Estimated operating expenses for January:

Sales salaries expense	$15,400
Advertising expense	8,500
Office salaries expense	11,500
Depreciation expense—office equipment	3,200
Telephone expense—selling	950
Telephone expense—administrative	600
Travel expense—selling	2,300
Office supplies expense	550
Miscellaneous administrative expense	400

i. Estimated other income and expense for January:

Interest revenue	$140
Interest expense	172

j. Estimated tax rate: 30%

Instructions

1. Prepare a sales budget for January.
2. Prepare a production budget for January.
3. Prepare a direct materials purchases budget for January.
4. Prepare a direct labor cost budget for January.
5. Prepare a factory overhead cost budget for January.
6. Prepare a cost of goods sold budget for January. Work in process at the beginning of January is estimated to be $12,500, and work in process at the end of January is desired to be $13,500.
7. Prepare a selling and administrative expenses budget for January.
8. Prepare a budgeted income statement for January.

OBJ. 5

✓ 1. August deficiency, $5,860

PR 22-4B Cash budget

The controller of Fleet Shoes Inc. instructs you to prepare a monthly cash budget for the next three months. You are presented with the following budget information:

	June	July	August
Sales	$140,000	$176,000	$240,000
Manufacturing costs	60,000	75,000	94,000
Selling and administrative expenses	35,000	40,000	45,000
Capital expenditures	—	—	55,000

The company expects to sell about 10% of its merchandise for cash. Of sales on account, 60% are expected to be collected in full in the month following the sale and the remainder the following month. Depreciation, insurance, and property tax expense represent $10,000 of the estimated monthly manufacturing costs. The annual insurance premium is paid in February, and the annual property taxes are paid in November. Of the remainder of the manufacturing costs, 80% are expected to be paid in the month in which they are incurred and the balance in the following month.

Current assets as of June 1 include cash of $48,000, marketable securities of $65,000, and accounts receivable of $168,000 ($124,000 from May sales and $44,000 from April sales). Sales on account in April and May were $110,000 and $124,000, respectively. Current liabilities as of June 1 include a $65,000, 8%, 90-day note payable due August 20 and $8,000 of accounts payable incurred in May for manufacturing costs. All selling and administrative expenses are paid in cash in the period they are incurred. It is expected that $4,000 in dividends will be received in June. An estimated income tax payment of $18,000 will be made in July. Fleet Shoes' regular quarterly dividend of $8,000 is expected to be declared in July and paid in August. Management desires to maintain a minimum cash balance of $45,000.

Instructions

1. Prepare a monthly cash budget and supporting schedules for June, July, and August 2012.
2. On the basis of the cash budget prepared in part (1), what recommendation should be made to the controller?

OBJ. 4, 5

✓ 1. Budgeted net income, $63,780

PR 22-5B Budgeted income statement and balance sheet

As a preliminary to requesting budget estimates of sales, costs, and expenses for the fiscal year beginning January 1, 2013, the following tentative trial balance as of December 31, 2012, is prepared by the Accounting Department of Franklin Publishing Co.:

Cash	$ 22,000	
Accounts Receivable	24,500	
Finished Goods	14,300	
Work in Process	3,500	
Materials	5,100	
Prepaid Expenses	400	
Plant and Equipment	55,000	
Accumulated Depreciation—Plant and Equipment		$ 26,000
Accounts Payable		17,900
Common Stock, $1.50 par		45,000
Retained Earnings		35,900
	$124,800	$124,800

Factory output and sales for 2013 are expected to total 3,200 units of product, which are to be sold at $100 per unit. The quantities and costs of the inventories at December 31, 2013, are expected to remain unchanged from the balances at the beginning of the year.

Budget estimates of manufacturing costs and operating expenses for the year are summarized as follows:

	Estimated Costs and Expenses	
	Fixed (Total for Year)	Variable (Per Unit Sold)
Cost of goods manufactured and sold:		
Direct materials	—	$25.00
Direct labor	—	7.80
Factory overhead:		
Depreciation of plant and equipment	$ 3,200	—
Other factory overhead	1,100	4.50
Selling expenses:		
Sales salaries and commissions	10,500	12.80
Advertising	11,800	—
Miscellaneous selling expense	900	2.00
Administrative expenses:		
Office and officers salaries	7,400	6.25
Supplies	400	1.00
Miscellaneous administrative expense	200	1.50

Balances of accounts receivable, prepaid expenses, and accounts payable at the end of the year are not expected to differ significantly from the beginning balances. Federal income tax of $26,000 on 2013 taxable income will be paid during 2013. Regular quarterly cash dividends of $0.15 per share are expected to be declared and paid in March, June, September, and December on 30,000 shares of common stock outstanding. It is anticipated that fixed assets will be purchased for $17,500 cash in May.

Instructions

1. Prepare a budgeted income statement for 2013.
2. Prepare a budgeted balance sheet as of December 31, 2013, with supporting calculations.

Cases & Projects

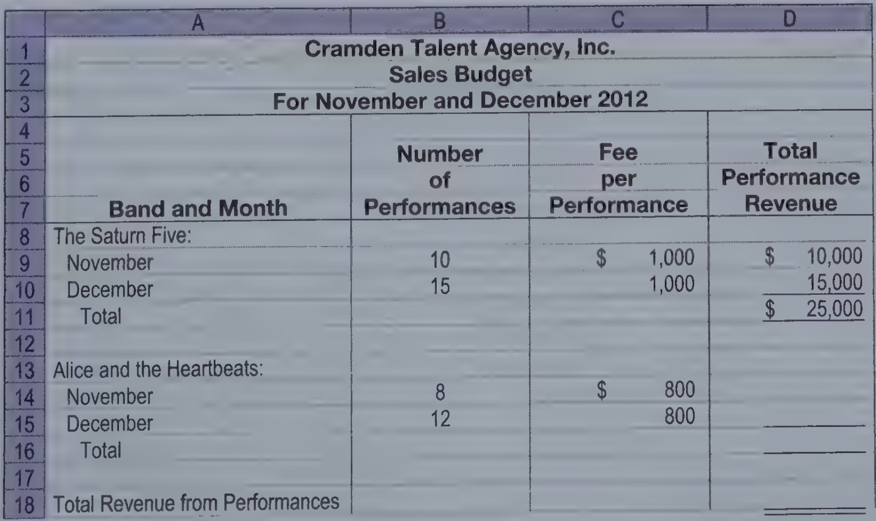
You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

excel success

SA 22-1 Sales budget

Cramden Talent Agency, Inc., books musical performances for the bands that it has under contract. The booking agent has partially completed a sales budget for two of the bands:



	A	B	C	D
1	Cramden Talent Agency, Inc.			
2	Sales Budget			
3	For November and December 2012			
4				
5		Number	Fee	Total
6		of	per	Performance
7	Band and Month	Performances	Performance	Revenue
8	The Saturn Five:			
9	November	10	$ 1,000	$ 10,000
10	December	15	1,000	15,000
11	Total			$ 25,000
12				
13	Alice and the Heartbeats:			
14	November	8	$ 800	
15	December	12	800	
16	Total			
17				
18	Total Revenue from Performances			

a. Open Excel file *SA22-1_2e* and complete the sales budget.

b. If the Christmas season is unusually active, the number of performances for each of the bands will increase. Revise the sales budget, assuming that the number of performances for each of the bands increases by two performances in November and by three in December.
[*Hint:* Copy and paste the spreadsheet you created in part (a) into the Revised Sales Budget worksheet and then modify it.]

c. When you have completed the sales budget and revisions, perform a "save as," replacing the entire file name with the following:
SA22-1_2e[your first name initial]_[your last name]

SA 22-2 Sales budget

Bluewater Sailing, Inc., manufactures and sells three cruising sailboats: the $200,000 *Nantucket*, the $350,000 *Circumnavigator*, and the $500,000 *Cape Horn*. Boats of this class require months to build; thus, long-range sales forecasts are critical in managing operations. The cruisers are manufactured in boatyards in California, North Carolina, and Italy. The estimated number of boats that will be delivered to customers during 2012 follows:

Product	West Coast	East Coast	Italy	Total
Nantucket	1	2	0	3
Circumnavigator	3	3	4	10
Cape Horn	2	2	2	6

a. Open Excel file *SA22-2_2e* to complete the sales budget.

b. Using the sales volume data and your spreadsheet software, prepare a sales budget that displays total sales volume and revenue for 2012. Your budget should display total estimated sales volume and revenue for each vessel and for all three boatyards.

c. When you have completed the sales budget and revisions, perform a "save as," replacing the entire file name with the following:
SA22-2_2e[your first name initial]_[your last name]

SA 22-3 Sales budget

Completely Fit, Inc., sells exercise equipment through three retail outlets in California. Among the fitness equipment items are two elliptical trainers: the Enduro (priced at $1,500 per unit) and the Marathon (priced at $2,500 per unit).

a. Open Excel file *SA22-3_2e* to complete the sales budget.

b. Using the estimated sales volume data below and your spreadsheet software, prepare a sales budget that displays total estimated sales volume and revenue for the first quarter of 2012.

Completely Fit, Inc.
Projected Unit Sales
For the Quarter Ending March 31, 2012

Outlet and Model	Estimated Sales Volume (Units)
Northern California Outlet:	
Enduro	10
Marathon	7
Bay Area Outlet:	
Enduro	23
Marathon	18
Southern California Outlet:	
Enduro	40
Marathon	48
Total	146

c. The marketing department has recommended that the price of the Enduro model be reduced by $150 in order to stimulate sales. If this is done, Enduro sales will increase by an estimated 6 units per quarter in Northern California, by 12 units per quarter in the Bay Area, and by 15 units per quarter in Southern California. Prepare a revised sales budget for the quarter.
[*Hint:* Copy and save the spreadsheet created in part (a) to another worksheet and then modify it.]

d. When you have completed the sales budget and revisions, perform a "save as," replacing the entire file name with the following:

SA22-3_2e[your first name initial]_[your last name]

CHAPTER

23

otos, Alastair Grant

Performance Evaluation Using Variances from Standard Costs

BMW Group—Mini Cooper

When you play a sport, you are evaluated with respect to how well you perform compared to a standard or to a competitor. In bowling, for example, your score is compared to a perfect score of 300 or to the scores of your competitors. In this class, you are compared to performance standards. These standards are often described in terms of letter grades, which provide a measure of how well you achieved the class objectives. On your job, you are also evaluated according to performance standards.

Just as your class performance is evaluated, managers are evaluated according to goals and plans. For example, BMW Group uses manufacturing standards at its automobile assembly plants to guide performance. The Mini Cooper, a BMW Group car, is manufactured in a modern facility in Oxford, England. There are a number of performance targets used in this plant. For example, the bodyshell is welded by over 250 robots so as to be two to three times stiffer than rival cars. In addition, the bodyshell dimensions are tested to the accuracy of the width of a human hair. Such performance standards are not surprising given the automotive racing background of John W. Cooper, the designer of the original Mini Cooper.

If you want to take an online tour of the Oxford plant to see how a Mini Cooper is manufactured, go to **http://www.mini.com/com/en/ manufacturing.**

Performance is often measured as the difference between actual results and planned results. In this chapter, we will discuss and illustrate the ways in which business performance is evaluated.

Learning Objectives

OBJ	After studying this chapter, you should be able to:	*Example Exercises*	*Page*
1	Describe the types of standards and how they are established. Standards Setting Standards Types of Standards Reviewing and Revising Standards Criticisms of Standard Costs		
2	Describe and illustrate how standards are used in budgeting. Budgetary Performance Evaluation Budget Performance Report Manufacturing Cost Variances		
3	Compute and interpret direct materials and direct labor variances. Direct Materials and Direct Labor Variances		
	Direct Materials Variances	EE 23-1	1076
	Direct Labor Variances	EE 23-2	1078
4	Compute and interpret factory overhead controllable and volume variances. Factory Overhead Variances The Factory Overhead Flexible Budget		
	Variable Factory Overhead Controllable Variance	EE 23-3	1080
	Fixed Factory Overhead Volume Variance	EE 23-4	1082
	Reporting Factory Overhead Variances Factory Overhead Account		
5	Journalize the entries for recording standards in the accounts and prepare an income statement that includes variances from standard. Recording and Reporting Variances from Standards	EE 23-5, 23-6	1086, 1088
6	Describe and provide examples of nonfinancial performance measures. Nonfinancial Performance Measures	EE 23-7	1089

At a Glance 23 Page 1090

OBJ 1 Describe the types of standards and how they are established.

Drivers for United Parcel Service (UPS) are expected to drive a standard distance per day. Salespersons for The Limited are expected to meet sales standards.

Standards

Standards are performance goals. Manufacturing companies normally use **standard cost** for each of the three following product costs:

1. Direct materials
2. Direct labor
3. Factory overhead

Accounting systems that use standards for product costs are called **standard cost systems**. Standard cost systems enable management to determine the following:

1. How much a product *should* cost (standard cost)
2. How much it does cost (actual cost)

When actual costs are compared with standard costs, the exceptions or cost variances are reported. This reporting by the *principle of exceptions* allows management to focus on correcting the cost variances.

Setting Standards

The standard-setting process normally requires the joint efforts of accountants, engineers, and other management personnel. The accountant converts the results of judgments and process studies into dollars and cents. Engineers with the aid of operation managers identify the materials, labor, and machine requirements needed to produce the product. For example, engineers estimate direct materials by studying the product

specifications and estimating normal spoilage. Time and motion studies may be used to determine the direct labor required for each manufacturing operation. Engineering studies may also be used to determine standards for factory overhead, such as the amount of power needed to operate machinery.

Types of Standards

Standards imply an acceptable level of production efficiency. One of the major objectives in setting standards is to motivate employees to achieve efficient operations.

Ideal standards, or *theoretical standards*, are standards that can be achieved only under perfect operating conditions, such as no idle time, no machine breakdowns, and no materials spoilage. Such standards may have a negative impact on performance, because they may be viewed by employees as unrealistic.

Currently attainable standards, sometimes called *normal standards*, are standards that can be attained with reasonable effort. Such standards, which are used by most companies, allow for normal production difficulties and mistakes. When reasonable standards are used, employees focus more on cost and are more likely to put forth their best efforts.

An example from the game of golf illustrates the distinction between ideal and normal standards. In golf, "par" is an ideal standard for most players. Each player's USGA (United States Golf Association) handicap is the player's normal standard. The motivation of average players is to beat their handicaps because beating par is unrealistic for most players.

Reviewing and Revising Standards

Standard costs should be periodically reviewed to ensure that they reflect current operating conditions. Standards should not be revised, however, just because they differ from actual costs. For example, the direct labor standard would not be revised just because employees are unable to meet properly set standards. On the other hand, standards should be revised when prices, product designs, labor rates, or manufacturing methods change.

Criticisms of Standard Costs

Some criticisms of using standard costs for performance evaluation include the following:

1. Standards limit operating improvements by discouraging improvement beyond the standard.
2. Standards are too difficult to maintain in a dynamic manufacturing environment, resulting in "stale standards."
3. Standards can cause employees to lose sight of the larger objectives of the organization by focusing only on efficiency improvement.
4. Standards can cause employees to unduly focus on their own operations to the possible harm of other operations that rely on them.

Regardless of these criticisms, standards are widely used. In addition, standard costs are only one part of the performance evaluation system used by most companies. As discussed in this chapter, other nonfinancial performance measures are often used to supplement standard costs, with the result that many of the preceding criticisms are overcome

Business Connection

MAKING THE GRADE IN THE REAL WORLD—THE 360-DEGREE REVIEW

When you leave school and take your first job, you will likely be subject to an employee evaluation. These reviews provide feedback on performance that is often very detailed, providing insights to strengths and weaknesses that often go beyond mere grades.

One feedback trend is the 360-degree review. As stated by the human resources consulting firm Towers Perrin, the 360-degree review "is a huge wave that's just hitting—not only here, but all over the world." In a 360-degree review, six to twelve evaluators who encircle an employee's sphere of influence, such as superiors, peers, and subordinates, are selected to fill out anonymous questionnaires. These questionnaires rate the employee on various criteria including the ability to work in groups, form a consensus, make timely decisions, motivate employees, and achieve objectives. The results are summarized and used to identify and strengthen weaknesses.

For example, one individual at Intel Corporation was very vocal during team meetings. In the 360-degree review, the manager thought this behavior was "refreshing." However, the employee's peers thought the vocal behavior monopolized conversations. Thus, what the manager viewed as a positive, the peer group viewed as a negative. The 360-degree review provided valuable information to both the manager and the employee to adjust behavior.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Sources: Llana DeBare, "360-Degrees of Evaluation: More Companies Turning to Full-Circle Job Reviews," *San Francisco Chronicle*, May 5, 1997; Francie Dalton, "Using 360 Degree Feedback Mechanisms," *Occupational Health and Safety*, Vol. 74, Issue 7, 2005.

Integrity, Objectivity, and Ethics in Business

COMPANY REPUTATION: THE BEST OF THE BEST

Harris Interactive annually ranks American corporations in terms of reputation. The ranking is based on how respondents rate corporations on 20 attributes in six major areas. The six areas are emotional appeal, products and services, financial performance, workplace environment, social responsibility, and vision and leadership. What are the five highest ranked companies in its 2008 survey? The five highest (best) ranked companies were Johnson & Johnson, Google, Sony Corporation, The Coca-Cola Company, and Kraft Foods.

Source: Harris Interactive, February 2009.

OBJ. 2 Describe and illustrate how standards are used in budgeting.

Budgetary Performance Evaluation

As discussed in Chapter 22, the master budget assists a company in planning, directing, and controlling performance. The control function, or budgetary performance evaluation, compares the actual performance against the budget.

To illustrate, Western Rider Inc., a manufacturer of blue jeans, uses standard costs in its budgets. The standards for direct materials, direct labor, and factory overhead are separated into the following two components.

1. Standard price
2. Standard quantity

The standard cost per unit for direct materials, direct labor, and factory overhead is computed as follows:

Standard Cost per Unit = Standard Price × Standard Quantity

Western Rider's standard costs per unit for its XL jeans are shown in Exhibit 1.

EXHIBIT 1

Standard Cost for XL Jeans

Manufacturing Costs	Standard Price	×	Standard Quantity per Pair	=	Standard Cost per Pair of XL Jeans
Direct materials	$5.00 per sq. yd.		1.5 sq. yds.		$ 7.50
Direct labor	$9.00 per hr.		0.80 hr. per pair		7.20
Factory overhead	$6.00 per hr.		0.80 hr. per pair		4.80
Total standard cost per pair					$19.50

As shown in Exhibit 1, the standard cost per pair of XL jeans is $19.50, which consists of $7.50 for direct materials, $7.20 for direct labor, and $4.80 for factory overhead.

The standard price and standard quantity are separated for each product cost. For example, Exhibit 1 indicates that for each pair of XL jeans, the standard price for direct materials is $5.00 per square yard and the standard quantity is 1.5 square yards. The standard price and quantity are separated because the department responsible for their control is normally different. For example, the direct materials price per square yard is controlled by the Purchasing Department, and the direct materials quantity per pair is controlled by the Production Department.

As illustrated in Chapter 22, the master budget is prepared based on planned sales and production. The budgeted costs for materials purchases, direct labor, and factory overhead are determined by multiplying their standard costs per unit by the planned level of production. Budgeted (standard) costs are then compared to actual costs during the year for control purposes.

Budget Performance Report

The report that summarizes actual costs, standard costs, and the differences for the units produced is called a **budget performance report**. To illustrate, assume that Western Rider produced the following pairs of jeans during June:

XL jeans produced and sold	5,000 pairs
Actual costs incurred in June:	
Direct materials	$ 40,150
Direct labor	38,500
Factory overhead	22,400
Total costs incurred	$101,050

Exhibit 2 illustrates the budget performance report for June for Western Rider Inc. The report summarizes the actual costs, standard costs, and the differences for each product cost. The differences between actual and standard costs are called **cost variances**. A **favorable cost variance** occurs when the actual cost is less than the standard cost. An **unfavorable cost variance** occurs when the actual cost exceeds the standard cost.

Note:

Favorable cost variance: Actual cost < Standard cost at actual volumes

Unfavorable cost variance: Actual cost > Standard cost at actual volumes

EXHIBIT 2

Budget Performance Report

Western Rider Inc.
Budget Performance Report
For the Month Ended June 30, 2012

Manufacturing Costs	Actual Costs	Standard Cost at Actual Volume (5,000 pairs of XL Jeans)*	Cost Variance—(Favorable) Unfavorable
Direct materials	$ 40,150	$37,500	$ 2,650
Direct labor	38,500	36,000	2,500
Factory overhead	22,400	24,000	(1,600)
Total manufacturing costs	$101,050	$97,500	$ 3,550

*5,000 pairs × $7.50 per pair = $37,500
5,000 pairs × $7.20 per pair = $36,000
5,000 pairs × $4.80 per pair = $24,000

The budget performance report shown in Exhibit 2 is based on the actual units produced in June of 5,000 XL jeans. Even though 6,000 XL jeans might have been *planned* for production, the budget performance report is based on *actual* production.

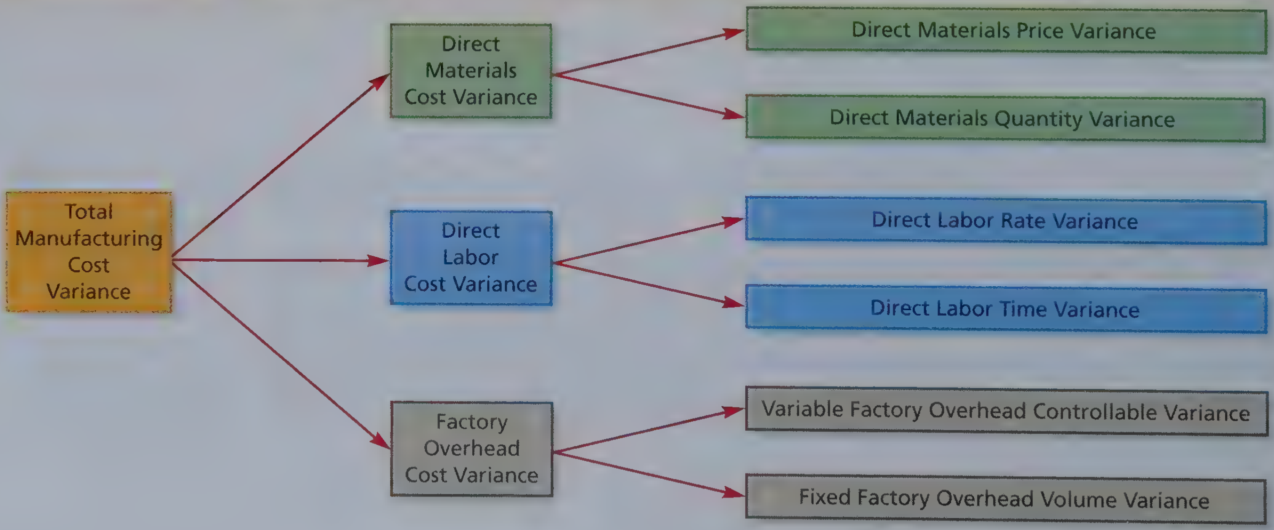
Manufacturing Cost Variances

The **total manufacturing cost variance** is the difference between total standard costs and total actual cost for the units produced. As shown in Exhibit 2, the total manufacturing cost unfavorable variance and the variance for each product cost is as follows:

	Cost Variance (Favorable) Unfavorable
Direct materials	$ 2,650
Direct labor	2,500
Factory overhead	(1,600)
Total manufacturing variance	$ 3,550

For control purposes, each product cost variance is separated into two additional variances as shown in Exhibit 3.

EXHIBIT 3 **Manufacturing Cost Variances**



The total direct materials variance is separated into a *price* and *quantity* variance. This is because standard and actual direct materials costs are computed as follows:

Actual Direct Materials Cost = Actual Price × Actual Quantity
Standard Direct Materials Cost = –Standard Price × Standard Quantity
Direct Materials Cost Variance = Price Difference + Quantity Difference

Thus, the actual and standard direct materials costs may differ because of either a price difference (variance) or a quantity difference (variance).

Likewise, the total direct labor variance is separated into a *rate* and a *time* variance. This is because standard and actual direct labor costs are computed as follows:

Actual Direct Labor Cost = Actual Rate × Actual Time
Standard Direct Labor Cost = –Standard Rate × Standard Time
Direct Labor Cost Variance = Rate Difference + Time Difference

Therefore, the actual and standard direct labor costs may differ because of either a rate difference (variance) or a time difference (variance).

The total factory overhead variance is separated into a *controllable* and *volume* variance. Because factory overhead has fixed and variable cost elements, it uses different variances than direct materials and direct labor, which are variable costs.

In the next sections, the price and quantity variances for direct materials, the rate and time variances for direct labor, and the controllable and volume variances for factory overhead are further described and illustrated.

Direct Materials and Direct Labor Variances

OBJ 3 Compute and interpret direct materials and direct labor variances.

As indicated in the prior section, the total direct materials and direct labor variances are separated into the following variances for analysis and control purposes:

Total Direct Materials Cost Variance ⟶ { Direct Materials Price Variance
Direct Materials Quantity Variance

Total Direct Labor Cost Variance ⟶ { Direct Labor Rate Variance
Direct Labor Time Variance

As a basis for illustration, the variances for Western Rider Inc.'s June operations shown in Exhibit 2 are used.

Direct Materials Variances

During June, Western Rider reported an unfavorable total direct materials cost variance of $2,650 for the production of 5,000 XL style jeans, as shown in Exhibit 2. This variance was based on the following actual and standard costs:

Actual costs	$40,150
Standard costs	37,500
Total direct materials cost variance	$ 2,650

The actual costs incurred of $40,150 consist of the following:

Actual Direct Materials Cost = Actual Price × Actual Quantity
Actual Direct Materials Cost = ($5.50 per sq. yd.) × (7,300 sq. yds.)
Actual Direct Materials Cost = $40,150

The standard costs of $37,500 consist of the following:

Standard Direct Materials Cost = Standard Price × Standard Quantity
Standard Direct Materials Cost = ($5.00 per sq. yd.) × (7,500 sq. yds.)
Standard Direct Materials Cost = $37,500

The standard price of $5.00 per square yard is taken from Exhibit 1. In addition, Exhibit 1 indicates that 1.5 square yards is the standard for producing one pair of XL jeans. Thus, 7,500 (5,000 × 1.5) square yards is the standard for producing 5,000 pairs of XL jeans.

Comparing the actual and standard cost computations shown above indicates that the total direct materials unfavorable cost variance of $2,650 is caused by the following:

1. A price per square yard of $0.50 ($5.50 – $5.00) more than standard
2. A quantity usage of 200 square yards (7,300 sq. yds. – 7,500 sq. yds.) less than standard

The impact of these differences from standard is reported and analyzed as a direct materials *price* variance and direct materials *quantity* variance.

Direct Materials Price Variance The **direct materials price variance** is computed as follows:

Direct Materials Price Variance = (Actual Price – Standard Price) × Actual Quantity

If the actual price per unit exceeds the standard price per unit, the variance is unfavorable. This positive amount (unfavorable variance) can be thought of as increasing costs (a debit). If the actual price per unit is less than the standard price per unit, the variance is favorable. This negative amount (favorable variance) can be thought of as decreasing costs (a credit).

To illustrate, the direct materials price variance for Western Rider Inc. is computed as follows:[1]

Direct Materials Price Variance = (Actual Price – Standard Price) × Actual Quantity
Direct Materials Price Variance = ($5.50 – $5.00) × 7,300 sq. yds.
Direct Materials Price Variance = $3,650 Unfavorable Variance

As shown above, Western Rider has an unfavorable direct materials price variance of $3,650 for June.

Direct Materials Quantity Variance The **direct materials quantity variance** is computed as follows:

Direct Materials Quantity Variance = (Actual Quantity – Standard Quantity) × Standard Price

If the actual quantity for the units produced exceeds the standard quantity, the variance is unfavorable. This positive amount (unfavorable variance) can be thought of as increasing costs (a debit). If the actual quantity for the units produced is less than the standard quantity, the variance is favorable. This negative amount (favorable variance) can be thought of as decreasing costs (a credit).

To illustrate, the direct materials quantity variance for Western Rider Inc. is computed as follows:

Direct Materials Quantity Variance = (Actual Quantity – Standard Quantity) × Standard Price
Direct Materials Quantity Variance = (7,300 sq. yds. – 7,500 sq. yds.) × $5.00
Direct Materials Quantity Variance = –$1,000 Favorable Variance

As shown above, Western Rider has a favorable direct materials quantity variance of $1,000 for June.

Direct Materials Variance Relationships The relationship among the *total* direct materials cost variance, the direct materials *price* variance, and the direct materials *quantity* variance is shown in Exhibit 4.

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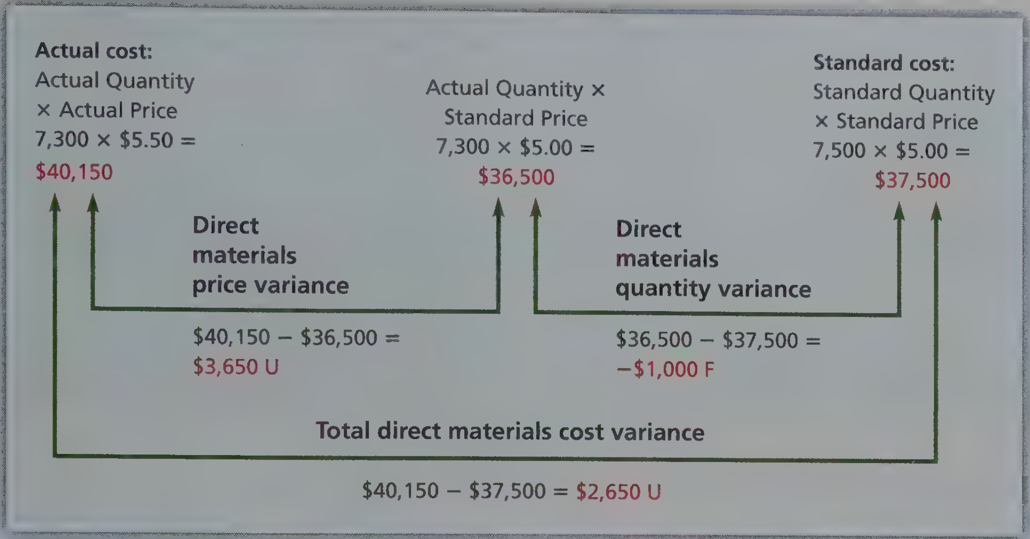
[1] To simplify, it is assumed that there is no change in the beginning and ending materials inventories. Thus, the amount of materials budgeted for production equals the amount purchased.

EXHIBIT 4

Direct Materials Variance Relationships



Reporting Direct Materials Variances The direct materials quantity variances should be reported to the manager responsible for the variance. For example, an unfavorable quantity variance might be caused by either of the following:

1. Equipment that has not been properly maintained
2. Low-quality (inferior) direct materials

In the first case, the operating department responsible for maintaining the equipment should be held responsible for the variance. In the second case, the Purchasing Department should be held responsible.

Not all variances are controllable. For example, an unfavorable materials price variance might be due to market-wide price increases. In this case, there is nothing the Purchasing Department might have done to avoid the unfavorable variance. On the other hand, if materials of the same quality could have been purchased from another supplier at the standard price, the variance was controllable.

BusinessConnection

WOULD YOU LIKE DESSERT?

Many restaurants use standards to manage the business. Food quantity standards are used to control the amount of food that is served to a customer. For example, Darden Restaurants, Inc., the operator of the Red Lobster chain, establishes food quantity standards for the number of shrimp, scallops, or clams on a seafood plate.

A food price variance can be used to control the price paid for food products. For example, Uno Restaurant Holdings Corp. controls food prices by using "forward contracts" for about 80% of its cheese and 50% of its wheat. Such a contract locks in the price for a period of time, thus eliminating materials price variances (favorable or unfavorable) for these items over the contract term.

Standards can also be used in innovative ways to monitor revenues. Brinker International, the operator of popular chains such as Chili's and On the Border, uses "theoretical food system" software that enables it to compare customer traffic and menu item volumes over a period of time. Thus, actual order revenue can be compared to expected (standard) revenues based on actual traffic volumes. In this way, the restaurant can monitor trends in check composition and size.

Source: Edward Teach, "Table Stakes," *CFO* (December 2008), pp. 44–49.

Example Exercise 23-1 Direct Materials Variances

OBJ. 3

Tip Top Corp. produces a product that requires six standard pounds per unit. The standard price is $4.50 per pound. If 3,000 units required 18,500 pounds, which were purchased at $4.35 per pound, what is the direct materials (a) price variance, (b) quantity variance, and (c) cost variance?

Follow My Example 23-1

a. Direct materials price variance (favorable)	–$2,775 [($4.35 – $4.50) × 18,500 pounds]
b. Direct materials quantity variance (unfavorable)	$2,250 [(18,500 pounds – 18,000 pounds*) × $4.50]
c. Direct materials cost variance (favorable)	–$525 [($2,775) + $2,250] or [($4.35 × 18,500 pounds) – ($4.50 × 18,000 pounds)] = $80,475 – $81,000

*3,000 units × 6 pounds

Practice Exercises: **PE 23-1A, PE 23-1B**

Direct Labor Variances

During June, Western Rider reported an unfavorable total direct labor cost variance of $2,500 for the production of 5,000 XL style jeans, as shown in Exhibit 2. This variance was based on the following actual and standard costs:

The Internal Revenue Service publishes a time standard for completing a tax return. The average 1040EZ return is expected to require eight hours to prepare.

Actual costs	$38,500
Standard costs	36,000
Total direct labor cost variance	$ 2,500

The actual costs incurred of $38,500 consist of the following:

Actual Direct Labor Cost = Actual Rate per Hour × Actual Time
Actual Direct Labor Cost = $10.00 per hr. × 3,850 hrs.
Actual Direct Labor Cost = $38,500

The standard costs of $36,000 consist of the following:

Standard Direct Labor Cost = Standard Rate per Hour × Standard Time
Standard Direct Labor Cost = $9.00 per hr. × 4,000 hrs.
Standard Direct Labor Cost = $36,000

The standard rate of $9.00 per direct labor hour is taken from Exhibit 1. In addition, Exhibit 1 indicates that 0.80 hour is the standard time required for producing one pair of XL jeans. Thus, 4,000 (5,000 × 0.80) direct labor hours is the standard for producing 5,000 pairs of XL jeans.

Comparing the actual and standard cost computations shown above indicates that the total direct labor unfavorable cost variance of $2,500 is caused by the following:

1. A rate of $1.00 per hour ($10.00 – $9.00) more than standard
2. A quantity of 150 hours (4,000 hrs. – 3,850 hrs.) less than standard

The impact of these differences from standard is reported and analyzed as a direct labor *rate* variance and a direct labor *time* variance.

Direct Labor Rate Variance The **direct labor rate variance** is computed as follows:

Direct Labor Rate Variance = (Actual Rate per Hour – Standard Rate per Hour) × Actual Hours

If the actual rate per hour exceeds the standard rate per hour, the variance is unfavorable. This positive amount (unfavorable variance) can be thought of as increasing costs (a debit). If the actual rate per hour is less than the standard rate per hour, the variance is favorable. This negative amount (favorable variance) can be thought of as decreasing costs (a credit).

To illustrate, the direct labor rate variance for Western Rider Inc. is computed as follows:

Direct Labor Rate Variance = (Actual Rate per Hour – Standard Rate per Hour) × Actual Hours
Direct Labor Rate Variance = ($10.00 – $9.00) × 3,850 hours
Direct Labor Rate Variance = $3,850 Unfavorable Variance

As shown above, Western Rider has an unfavorable direct labor rate variance of $3,850 for June.

Direct Labor Time Variance The **direct labor time variance** is computed as follows:

Direct Labor Time Variance = (Actual Direct Labor Hours – Standard Direct Labor Hours) × Standard Rate per Hour

If the actual direct labor hours for the units produced exceeds the standard direct labor hours, the variance is unfavorable. This positive amount (unfavorable variance) can be thought of as increasing costs (a debit). If the actual direct labor hours for the units produced is less than the standard direct labor hours, the variance is favorable. This negative amount (favorable variance) can be thought of as decreasing costs (a credit).

To illustrate, the direct labor time variance for Western Rider Inc. is computed as follows:

Direct Labor Time Variance = (Actual Direct Labor Hours – Standard Direct Labor Hours) × Standard Rate per Hour
Direct Labor Time Variance = (3,850 hours – 4,000 direct labor hours) × $9.00
Direct Labor Time Variance = – $1,350 Favorable Variance

As shown above, Western Rider has a favorable direct labor time variance of $1,350 for June.

Direct Labor Variance Relationships The relationships among the *total* direct labor cost variance, the direct labor *rate* variance, and the direct labor *time* variance is shown in Exhibit 5.

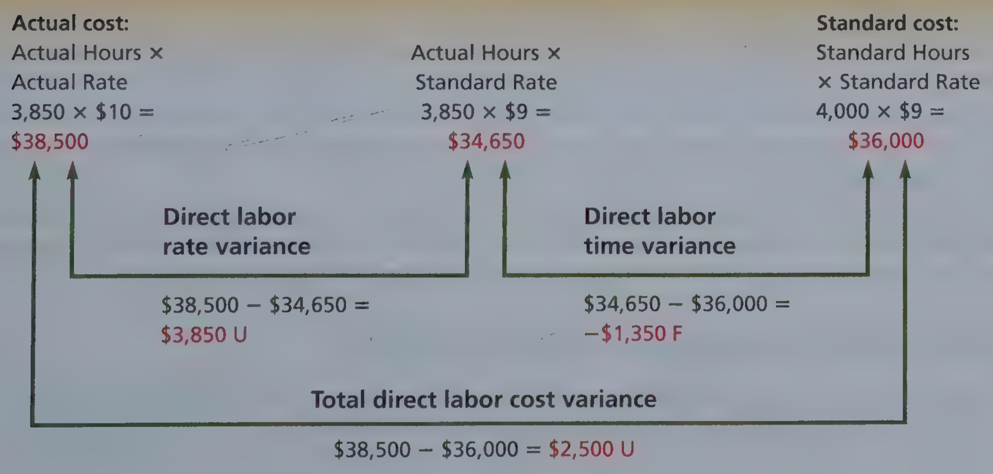


EXHIBIT 5

Direct Labor Variance Relationships

Reporting Direct Labor Variances Production supervisors are normally responsible for controlling direct labor cost. For example, an investigation could reveal the following causes for unfavorable rate and time variances:

1. An unfavorable rate variance may be caused by the improper scheduling and use of employees. In such cases, skilled, highly paid employees may be used in jobs that are normally performed by unskilled, lower-paid employees. In this case, the unfavorable rate variance should be reported to the managers who schedule work assignments.

2. An unfavorable time variance may be caused by a shortage of skilled employees. In such cases, there may be an abnormally high turnover rate among skilled employees. In this case, production supervisors with high turnover rates should be questioned as to why their employees are quitting.

Direct Labor Standards for Nonmanufacturing Activities Direct labor time standards can also be developed for use in administrative, selling, and service activities. This is most appropriate when the activity involves a repetitive task that produces a common output. In these cases, the use of standards is similar to that for a manufactured product.

To illustrate, standards could be developed for customer service personnel who process sales orders. A standard time for processing a sales order (the output) could be developed and used to control sales order processing costs. Similar standards could be developed for computer help desk operators, nurses, and insurance application processors.

When labor-related activities are not repetitive, direct labor time standards are less commonly used. For example, the time spent by a senior executive or the work of a research and development scientist would not normally be controlled using time standards.

Example Exercise 23-2 Direct Labor Variances

OBJ. 3

Tip Top Corp. produces a product that requires 2.5 standard hours per unit at a standard hourly rate of $12 per hour. If 3,000 units required 7,420 hours at an hourly rate of $12.30 per hour, what is the (a) direct labor rate variance, (b) direct labor time variance, and (c) total direct labor cost variance?

Follow My Example 23-2

a. Direct labor rate variance (unfavorable)	$2,226 [($12.30 – $12.00) × 7,420 hours]
b. Direct labor time variance (favorable)	–$960 [(7,420 hours – 7,500 hours*) × $12.00]
c. Total direct labor cost variance (unfavorable)	$1,266 [$2,226 + ($960)] or [($12.30 × 7,420 hours) – ($12.00 × 7,500 hours)] = $91,266 – $90,000

*3,000 units × 2.5 hours

Practice Exercises: **PE 23-2A, PE 23-2B**

OBJ. 4 Compute and interpret factory overhead controllable and volume variances.

Factory Overhead Variances

Factory overhead costs are analyzed differently than direct labor and direct materials costs. This is because factory overhead costs have fixed and variable cost elements. For example, indirect materials and factory supplies normally behave as a variable cost as units produced changes. In contrast, straight-line plant depreciation on factory machinery is a fixed cost.

Factory overhead costs are budgeted and controlled by separating factory overhead into fixed and variable components. Doing so allows the preparation of flexible budgets and the analysis of factory overhead controllable and volume variances.

The Factory Overhead Flexible Budget

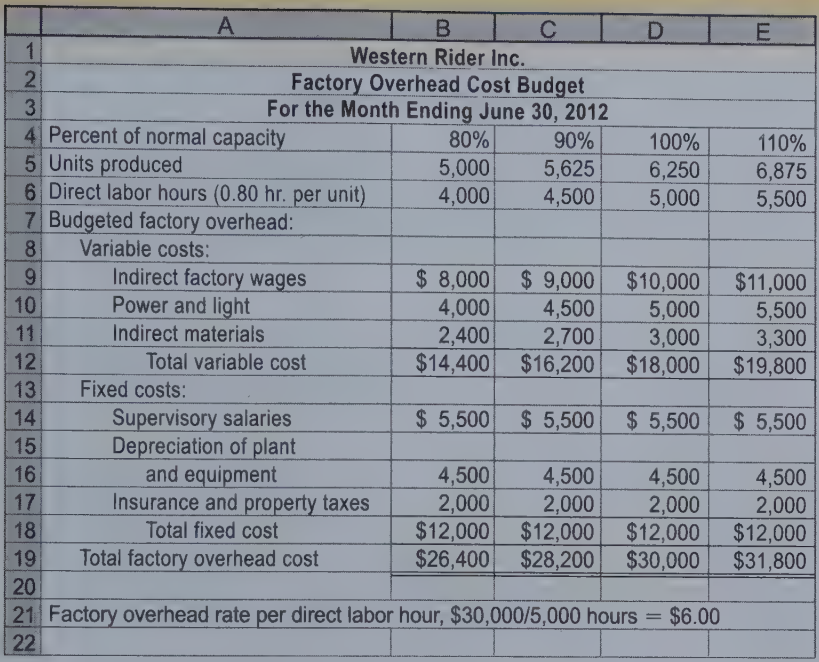
The preparation of a flexible budget was described and illustrated in Chapter 22. Exhibit 6 illustrates a flexible factory overhead budget for Western Rider Inc. for June 2012.

Exhibit 6 indicates that the budgeted factory overhead rate for Western Rider is $6.00, as computed below.

$$\text{Factory Overhead Rate} = \frac{\text{Budgeted Factory Overhead at Normal Capacity}}{\text{Normal Productive Capacity}}$$

$$\text{Factory Overhead Rate} = \frac{\$30{,}000}{5{,}000 \text{ direct labor hrs.}} = \$6.00 \text{ per direct labor hr.}$$

The normal productive capacity is expressed in terms of an activity base such as direct labor hours, direct labor cost, or machine hours. For Western Rider, 100% of



	A	B	C	D	E
1	Western Rider Inc.				
2	Factory Overhead Cost Budget				
3	For the Month Ending June 30, 2012				
4	Percent of normal capacity	80%	90%	100%	110%
5	Units produced	5,000	5,625	6,250	6,875
6	Direct labor hours (0.80 hr. per unit)	4,000	4,500	5,000	5,500
7	Budgeted factory overhead:				
8	Variable costs:				
9	Indirect factory wages	$ 8,000	$ 9,000	$10,000	$11,000
10	Power and light	4,000	4,500	5,000	5,500
11	Indirect materials	2,400	2,700	3,000	3,300
12	Total variable cost	$14,400	$16,200	$18,000	$19,800
13	Fixed costs:				
14	Supervisory salaries	$ 5,500	$ 5,500	$ 5,500	$ 5,500
15	Depreciation of plant				
16	and equipment	4,500	4,500	4,500	4,500
17	Insurance and property taxes	2,000	2,000	2,000	2,000
18	Total fixed cost	$12,000	$12,000	$12,000	$12,000
19	Total factory overhead cost	$26,400	$28,200	$30,000	$31,800
20					
21	Factory overhead rate per direct labor hour, $30,000/5,000 hours = $6.00				
22					

EXHIBIT 6

Factory Overhead Cost Budget Indicating Standard Factory Overhead Rate

normal capacity is 5,000 direct labor hours. The budgeted factory overhead cost at 100% of normal capacity is $30,000, which consists of variable overhead of $18,000 and fixed overhead of $12,000.

For analysis purposes, the budgeted factory overhead rate is subdivided into a variable factory overhead rate and a fixed factory overhead rate. For Western Rider, the variable overhead rate is $3.60 per direct labor hour, and the fixed overhead rate is $2.40 per direct labor hour, as computed below.

$$\text{Variable Factory Overhead Rate} = \frac{\text{Budgeted Variable Overhead at Normal Capacity}}{\text{Normal Productive Capacity}}$$

$$\text{Variable Factory Overhead Rate} = \frac{\$18{,}000}{5{,}000 \text{ direct labor hrs.}} = \$3.60 \text{ per direct labor hr.}$$

$$\text{Fixed Factory Overhead Rate} = \frac{\text{Budgeted Fixed Overhead at Normal Capacity}}{\text{Normal Productive Capacity}}$$

$$\text{Fixed Factory Overhead Rate} = \frac{\$12{,}000}{5{,}000 \text{ direct labor hrs.}} = \$2.40 \text{ per direct labor hr.}$$

To summarize, the budgeted factory overhead rates for Western Rider Inc. are as follows:

Variable factory overhead rate	$3.60
Fixed factory overhead rate	2.40
Total factory overhead rate	$6.00

As mentioned earlier, factory overhead variances can be separated into a controllable variance and a volume variance as discussed in the next sections.

Variable Factory Overhead Controllable Variance

The variable factory overhead **controllable variance** is the difference between the actual variable overhead costs and the budgeted variable overhead for actual production. It is computed as shown below.

$$\text{Variable Factory Overhead Controllable Variance} = \text{Actual Variable Factory Overhead} - \text{Budgeted Variable Factory Overhead}$$

If the actual variable overhead is less than the budgeted variable overhead, the variance is favorable. If the actual variable overhead exceeds the budgeted variable overhead, the variance is unfavorable.

The **budgeted variable factory overhead** is the standard variable overhead for the *actual* units produced. It is computed as follows:

Budgeted Variable Factory Overhead = Standard Hours for Actual Units Produced
× Variable Factory Overhead Rate

To illustrate, the budgeted variable overhead for Western Rider for June is $14,400, as computed below.

Budgeted Variable Factory Overhead = Standard Hours for Actual Units Produced
× Variable Factory Overhead Rate
Budgeted Variable Factory Overhead = 4,000 direct labor hrs. × $3.60
Budgeted Variable Factory Overhead = $14,400

The preceding computation is based on the fact that Western Rider produced 5,000 XL jeans, which requires a standard of 4,000 (5,000 × 0.8 hr.) direct labor hours. The variable factory overhead rate of $3.60 was computed earlier. Thus, the budgeted variable factory overhead is $14,400 (4,000 direct labor hrs. × $3.60).

During June, assume that Western Rider incurred the following actual factory overhead costs:

	Actual Costs in June
Variable factory overhead	$10,400
Fixed factory overhead	12,000
Total actual factory overhead	$22,400

Based on the actual variable factory overhead incurred in June, the variable factory overhead controllable variance is a $4,000 favorable variance, as computed below.

Variable Factory Overhead Controllable Variance = Actual Variable Factory Overhead − Budgeted Variable Factory Overhead

Variable Factory Overhead Controllable Variance = $10,400 − $14,400

Variable Factory Overhead Controllable Variance = −$4,000 Favorable Variance

The variable factory overhead controllable variance indicates the ability to keep the factory overhead costs within the budget limits. Since variable factory overhead costs are normally controllable at the department level, responsibility for controlling this variance usually rests with department supervisors.

Example Exercise 23-3 Factory Overhead Controllable Variance

OBJ. 4

Tip Top Corp. produced 3,000 units of product that required 2.5 standard hours per unit. The standard variable overhead cost per unit is $2.20 per hour. The actual variable factory overhead was $16,850. Determine the variable factory overhead controllable variance.

Follow My Example 23-3

Variable Factory Overhead Controllable Variance = Actual Variable Factory Overhead − Budgeted Variable Factory Overhead
Variable Factory Overhead Controllable Variance = $16,850 − [(3,000 units × 2.5 hrs.) × $2.20]
Variable Factory Overhead Controllable Variance = $16,850 − $16,500
Variable Factory Overhead Controllable Variance = $350 Unfavorable Variance

Practice Exercises: **PE 23-3A, PE 23-3B**

Fixed Factory Overhead Volume Variance

Western Rider's budgeted factory overhead is based on a 100% normal capacity of 5,000 direct labor hours, as shown in Exhibit 6. This is the expected capacity that management believes will be used under normal business conditions. Exhibit 6 indicates that the 5,000 direct labor hours is less than the total available capacity of 110%, which is 5,500 direct labor hours.

The fixed factory overhead **volume variance** is the difference between the budgeted fixed overhead at 100% of normal capacity and the standard fixed overhead for the actual units produced. It is computed as follows:

$$\text{Fixed Factory Overhead Volume Variance} = \left(\text{Standard Hours for 100\% of Normal Capacity} - \text{Standard Hours for Actual Units Produced}\right) \times \text{Fixed Factory Overhead Rate}$$

The volume variance measures the use of fixed overhead resources (plant and equipment). The interpretation of an unfavorable and a favorable fixed factory overhead volume variance is as follows:

1. *Unfavorable* fixed factory overhead variance. The actual units produced is *less than* 100% of normal capacity; thus, the company used its fixed overhead resources (plant and equipment) less than would be expected under normal operating conditions.
2. *Favorable* fixed factory overhead variance. The actual units produced is *more than* 100% of normal capacity; thus, the company used its fixed overhead resources (plant and equipment) more than would be expected under normal operating conditions.

To illustrate, the volume variance for Western Rider is a $2,400 unfavorable variance, as computed below.

$$\text{Fixed Factory Overhead Volume Variance} = \left(\text{Standard Hours for 100\% of Normal Capacity} - \text{Standard Hours for Actual Units Produced}\right) \times \text{Fixed Factory Overhead Rate}$$

$$\text{Fixed Factory Overhead Volume Variance} = \left(\text{5,000 direct labor hrs.} - \text{4,000 direct labor hrs.}\right) \times \$2.40$$

$$\text{Fixed Factory Overhead Volume Variance} = \$2{,}400 \text{ Unfavorable Variance}$$

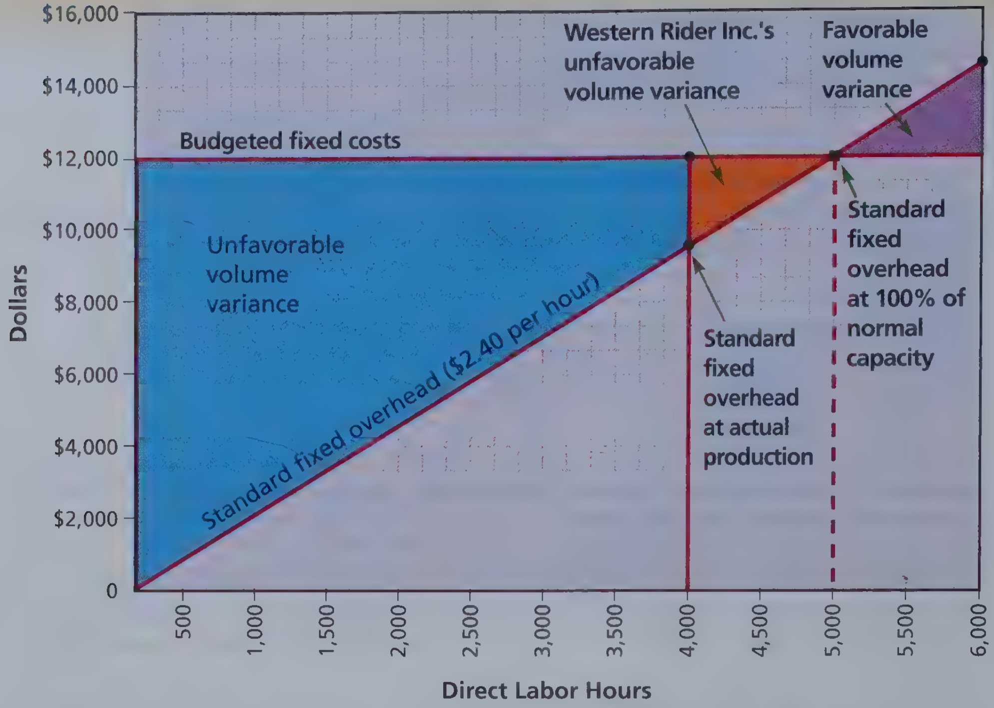
Since Western Rider produced 5,000 XL jeans during June, the standard for the actual units produced is 4,000 (5,000 × 0.80) direct labor hours. This is 1,000 hours less than the 5,000 standard hours of normal capacity. The fixed overhead rate of $2.40 was computed earlier. Thus, the unfavorable fixed factory overhead volume variance is $2,400 (1,000 direct labor hrs. × $2.40).

Exhibit 7 illustrates graphically the fixed factory overhead volume variance for Western Rider Inc. The budgeted fixed overhead does not change and is $12,000 at all levels of production. At 100% of normal capacity (5,000 direct labor hours), the standard fixed overhead line intersects the budgeted fixed costs line. For production levels *more than* 100% of normal capacity (5,000 direct labor hours), the volume variance is *favorable*. For production levels *less than* 100% of normal capacity (5,000 direct labor hours), the volume variance is *unfavorable*.

Exhibit 7 indicates that Western Rider's volume variance is unfavorable in June because the actual production is 4,000 direct labor hours, or 80% of normal volume. The unfavorable volume variance of $2,400 can be viewed as the cost of the unused capacity (1,000 direct labor hours).

EXHIBIT 7

Graph of Fixed Overhead Volume Variance



An unfavorable volume variance may be due to factors such as the following:

1. Failure to maintain an even flow of work
2. Machine breakdowns
3. Work stoppages caused by lack of materials or skilled labor
4. Lack of enough sales orders to keep the factory operating at normal capacity

Management should determine the causes of the unfavorable variance and consider taking corrective action. For example, a volume variance caused by an uneven flow of work could be remedied by changing operating procedures. Lack of sales orders may be corrected through increased advertising.

Favorable volume variances may not always be desirable. For example, in an attempt to create a favorable volume variance, manufacturing managers might run the factory above the normal capacity. However, if the additional production cannot be sold, it must be stored as inventory, which would incur storage costs.

Example Exercise 23-4 Factory Overhead Volume Variance

OBJ. 4

Tip Top Corp. produced 3,000 units of product that required 2.5 standard hours per unit. The standard fixed overhead cost per unit is $0.90 per hour at 8,000 hours, which is 100% of normal capacity. Determine the fixed factory overhead volume variance.

Follow My Example 23-4

Fixed Factory Overhead Volume Variance = (Standard Hours for 100% of Normal Capacity – Standard Hours for Actual Units Produced) × Fixed Factory Overhead Rate
Fixed Factory Overhead Volume Variance = [8,000 hrs. – (3,000 units × 2.5 hrs.)] × $0.90
Fixed Factory Overhead Volume Variance = (8,000 hrs. – 7,500 hrs.) × $0.90
Fixed Factory Overhead Volume Variance = $450 Unfavorable Variance

Practice Exercises: **PE 23-4A, PE 23-4B**

Reporting Factory Overhead Variances

The total factory overhead cost variance can also be determined as the sum of the factory overhead controllable and volume variances, as shown below for Western Rider Inc.

Variable factory overhead controllable variance	–$4,000 Favorable Variance
Fixed factory overhead volume variance	2,400 Unfavorable Variance
Total factory overhead cost variance	–$1,600 Favorable Variance

A **factory overhead cost variance report** is useful to management in controlling factory overhead costs. Budgeted and actual costs for variable and fixed factory overhead along with the related controllable and volume variances are reported by each cost element.

Exhibit 8 illustrates a factory overhead cost variance report for Western Rider Inc. for June.

EXHIBIT 8

Factory Overhead Cost Variance Report

	A	B	C	D	E
1	Western Rider Inc.				
2	Factory Overhead Cost Variance Report				
3	For the Month Ending June 30, 2012				
4	Productive capacity for the month (100% of normal)		5,000 hours		
5	Actual production for the month		4,000 hours		
6					
7		Budget			
8		(at Actual		Variances	
9		Production)	Actual	Favorable	Unfavorable
10	Variable factory overhead costs:				
11	Indirect factory wages	$ 8,000	$ 5,100	$2,900	
12	Power and light	4,000	4,200		$ 200
13	Indirect materials	2,400	1,100	1,300	
14	Total variable factory				
15	overhead cost	$14,400	$10,400		
16	Fixed factory overhead costs:				
17	Supervisory salaries	$ 5,500	$ 5,500		
18	Depreciation of plant and				
19	equipment	4,500	4,500		
20	Insurance and property taxes	2,000	2,000		
21	Total fixed factory				
22	overhead cost	$12,000	$12,000		
23	Total factory overhead cost	$26,400	$22,400		
24	Total controllable variances			$4,200	$ 200
25					
26					
27	Net controllable variance—favorable				$4,000
28	Volume variance—unfavorable:				
29	Capacity not used at the standard rate for fixed				
30	factory overhead—1,000 × $2.40				2,400
31	Total factory overhead cost variance—favorable				$1,600
32					

Factory Overhead Account

To illustrate, the applied factory overhead for Western Rider for the 5,000 XL jeans produced in June is $24,000, as computed below.

$$\text{Applied Factory Overhead} = \text{Standard Hours for Actual Units Produced} \times \text{Total Factory Overhead Rate}$$

Applied Factory Overhead = (5,000 jeans × 0.80 direct labor hr. per pair of jeans) × $6.00

Applied Factory Overhead = 4,000 direct labor hrs. × $6.00 = $24,000

The total actual factory overhead for Western Rider, as shown in Exhibit 8, was $22,400. Thus, the total factory overhead cost variance for Western Rider for June is a $1,600 favorable variance, as computed below.

$$\text{Total Factory Overhead Cost Variance} = \text{Actual Factory Overhead} - \text{Applied Factory Overhead}$$

$$\text{Total Factory Overhead Cost Variance} = \$22{,}400 - \$24{,}000 = -\$1{,}600 \text{ Favorable Variance}$$

At the end of the period, the factory overhead account normally has a balance. A debit balance in Factory Overhead represents underapplied overhead. Underapplied overhead occurs when actual factory overhead costs exceed the applied factory overhead. A credit balance in Factory Overhead represents overapplied overhead. Overapplied overhead occurs when actual factory overhead costs are less than the applied factory overhead.

The difference between the actual factory overhead and the applied factory overhead is the total factory overhead cost variance. Thus, underapplied and overapplied factory overhead account balances represent the following total factory overhead cost variances:

1. *Underapplied* Factory Overhead = *Unfavorable* Total Factory Overhead Cost Variance
2. *Overapplied* Factory Overhead = *Favorable* Total Factory Overhead Cost Variance

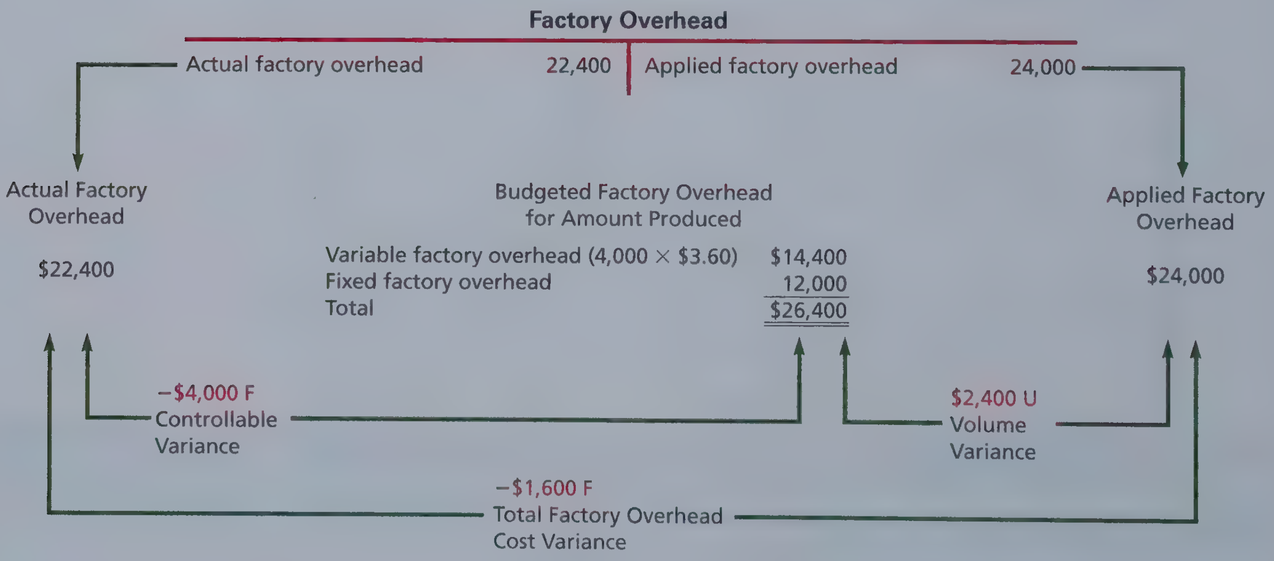
The factory overhead account for Western Rider Inc. for the month ending June 30, 2012, is shown below.

Factory Overhead

Actual factory overhead ($10,400 + $12,000)	22,400		24,000	Applied factory overhead (4,000 hrs. × $6.00 per hr.)
		Bal., June 30	1,600	Overapplied factory overhead

The $1,600 overapplied factory overhead account balance shown above and the favorable total factory overhead cost variance shown in Exhibit 8 are the same.

The variable factory overhead controllable variance and the volume variance can be computed by comparing the factory overhead account with the budgeted total overhead for the actual level produced, as shown below.



Variable factory overhead (4,000 × $3.60)	$14,400
Fixed factory overhead	12,000
Total	$26,400

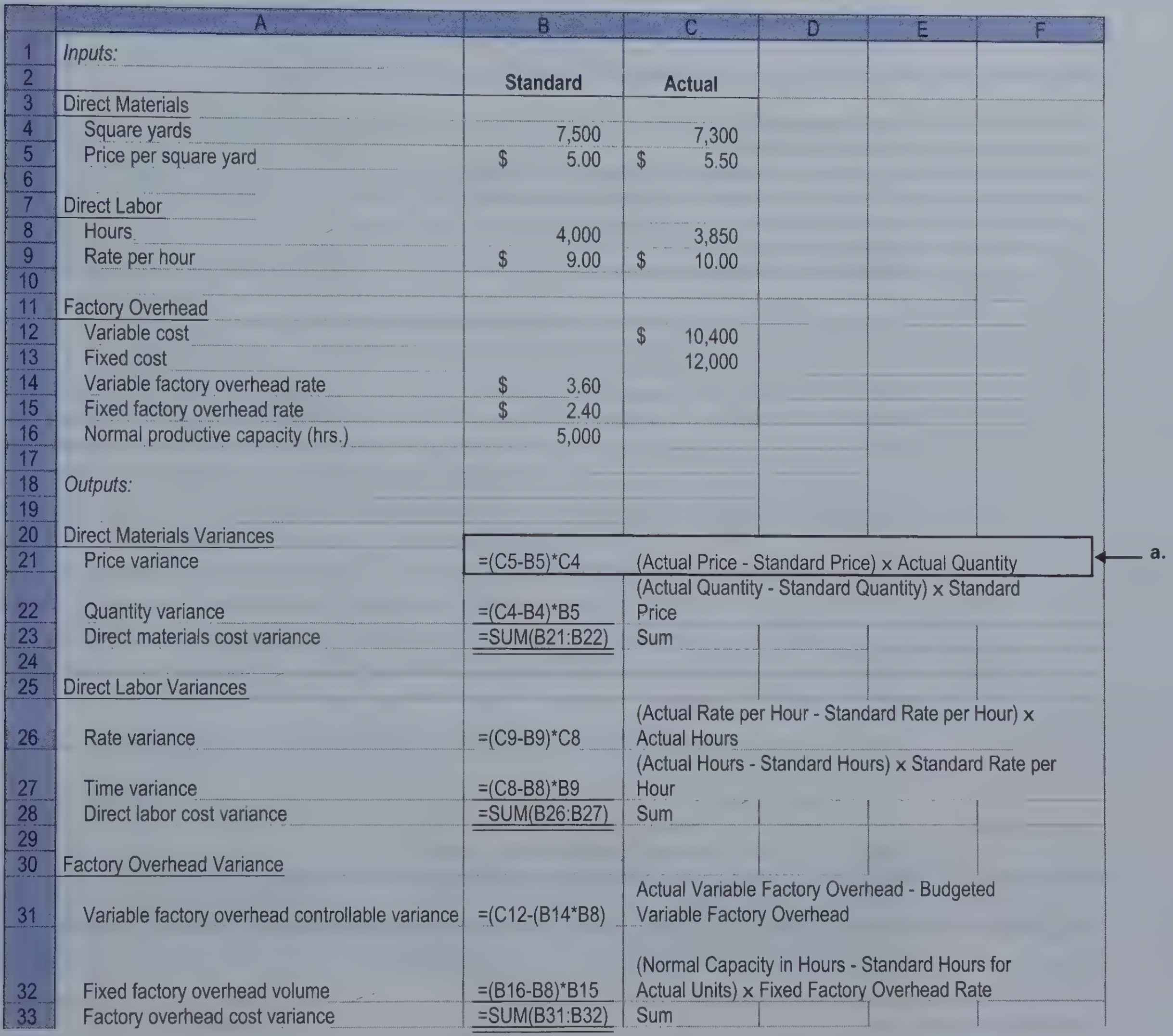
The controllable and volume variances are determined as follows:

1. The difference between the actual overhead incurred and the budgeted overhead is the *controllable* variance.
2. The difference between the applied overhead and the budgeted overhead is the *volume* variance.

If the actual factory overhead exceeds (is less than) the budgeted factory overhead, the controllable variance is unfavorable (favorable). In contrast, if the applied factory overhead is less than (exceeds) the budgeted factory overhead, the volume variance is unfavorable (favorable).

excel success

A spreadsheet can be used to compute the cost variances as follows:



	A	B	C	D	E	F
1	*Inputs:*					
2		**Standard**	**Actual**			
3	Direct Materials					
4	Square yards	7,500	7,300			
5	Price per square yard	$ 5.00	$ 5.50			
6						
7	Direct Labor					
8	Hours	4,000	3,850			
9	Rate per hour	$ 9.00	$ 10.00			
10						
11	Factory Overhead					
12	Variable cost		$ 10,400			
13	Fixed cost		12,000			
14	Variable factory overhead rate	$ 3.60				
15	Fixed factory overhead rate	$ 2.40				
16	Normal productive capacity (hrs.)	5,000				
17						
18	*Outputs:*					
19						
20	Direct Materials Variances					
21	Price variance	=(C5-B5)*C4	(Actual Price - Standard Price) x Actual Quantity			
22	Quantity variance	=(C4-B4)*B5	(Actual Quantity - Standard Quantity) x Standard Price			
23	Direct materials cost variance	=SUM(B21:B22)	Sum			
24						
25	Direct Labor Variances					
26	Rate variance	=(C9-B9)*C8	(Actual Rate per Hour - Standard Rate per Hour) x Actual Hours			
27	Time variance	=(C8-B8)*B9	(Actual Hours - Standard Hours) x Standard Rate per Hour			
28	Direct labor cost variance	=SUM(B26:B27)	Sum			
29						
30	Factory Overhead Variance					
31	Variable factory overhead controllable variance	=(C12-(B14*B8))	Actual Variable Factory Overhead - Budgeted Variable Factory Overhead			
32	Fixed factory overhead volume	=(B16-B8)*B15	(Normal Capacity in Hours - Standard Hours for Actual Units) x Fixed Factory Overhead Rate			
33	Factory overhead cost variance	=SUM(B31:B32)	Sum			

The spreadsheet is divided into inputs and outputs. The inputs provide the information needed to develop the cost variance formulas. The formulas for each variance are explained by the adjacent text explanation. Thus, for example, the direct materials price variance is determined as:

a. (Actual Price - Standard Price) x Actual Quantity

The formula referencing cells from the input area is:

=(C5-B5)*C4

The remaining formulas reference the input cells in a similar manner.

TryIt Go to the hands-on ***Excel Tutor*** for this example!

Recording and Reporting Variances from Standards

5 Journalize the entries for recording standards in the accounts and prepare an income statement that includes variances from standard.

Standard costs may be used as a management tool to control costs separately from the accounts in the general ledger. However, many companies include standard costs in their accounts. One method for doing so records standard costs and variances at the same time the actual product costs are recorded.

To illustrate, assume that Western Rider Inc. purchased, on account, the 7,300 square yards of blue denim used at $5.50 per square yard. The standard price for direct materials is $5.00 per square yard. The entry to record the purchase and the unfavorable direct materials price variance is as follows:

		Materials (7,300 sq. yds. × $5.00)		36,500		
		Direct Materials Price Variance		3,650		
		Accounts Payable (7,300 sq. yds. × $5.50)			40,150	

The materials account is debited for the *actual quantity* purchased at the *standard price*, $36,500 (7,300 square yards × $5.00). Accounts Payable is credited for the $40,150 actual cost and the amount due the supplier. The difference of $3,650 is the unfavorable direct materials price variance [($5.50 – $5.00) × 7,300 sq. yds.]. It is recorded by debiting *Direct Materials Price Variance*. If the variance had been favorable, Direct Materials Price Variance would have been credited for the variance.

A debit balance in the direct materials price variance account represents an unfavorable variance. Likewise, a credit balance in the direct materials price variance account represents a favorable variance.

The direct materials quantity variance is recorded in a similar manner. For example, Western Rider Inc. used 7,300 square yards of blue denim to produce 5,000 pairs of XL jeans. The standard quantity of denim for the 5,000 jeans produced is 7,500 square yards. The entry to record the materials used is as follows:

		Work in Process (7,500 sq. yds. × $5.00)		37,500		
		Direct Materials Quantity Variance			1,000	
		Materials (7,300 sq. yds. × $5.00)			36,500	

Work in Process is debited for $37,500, which is the standard cost of the direct materials required to produce 5,000 XL jeans (7,500 sq. yds. × $5.00). Materials is credited for $36,500, which is the actual quantity of materials used at the standard price (7,300 sq. yds. × $5.00). The difference of $1,000 is the favorable direct materials quantity variance [(7,300 sq. yds. – 7,500 sq. yds.) × $5.00]. It is recorded by crediting *Direct Materials Quantity Variance*. If the variance had been unfavorable, Direct Materials Quantity Variance would have been debited for the variance.

A debit balance in the direct materials quantity variance account represents an unfavorable variance. Likewise, a credit balance in the direct materials quantity variance account represents a favorable variance.

Example Exercise 23-5 Standard Cost Journal Entries

OBJ. 5

Tip Top Corp. produced 3,000 units that require six standard pounds per unit at the $4.50 standard price per pound. The company actually used 18,500 pounds in production. Journalize the entry to record the standard direct materials used in production.

Follow My Example 23-5

Work in Process (18,000* pounds × $4.50)	81,000	
Direct Materials Quantity Variance [(18,500 pounds – 18,000 pounds) × $4.50]	2,250	
Materials (18,500 pounds × $4.50)		83,250

*3,000 units × 6 pounds per unit = 18,000 standard pounds for units produced

Practice Exercises: **PE 23-5A, PE 23-5B**

The journal entries to record the standard costs and variances for *direct labor* are similar to those for direct materials. These entries are summarized below.

1. Work in Process is debited for the standard cost of direct labor.
2. Wages Payable is credited for the actual direct labor cost incurred.
3. Direct Labor Rate Variance is debited for an unfavorable variance and credited for a favorable variance.
4. Direct Labor Time Variance is debited for an unfavorable variance and credited for a favorable variance.

As illustrated in the prior section, the factory overhead account already incorporates standard costs and variances into its journal entries. That is, Factory Overhead is debited for actual factory overhead and credited for applied (standard) factory overhead. The ending balance of factory overhead (overapplied or underapplied) is the total factory overhead cost variance. By comparing the actual factory overhead with the budgeted factory overhead, the controllable variance can be determined. By comparing the budgeted factory overhead with the applied factory overhead, the volume variance can be determined.

When goods are completed, Finished Goods is debited and Work in Process is credited for the standard cost of the product transferred.

At the end of the period, the balances of each of the variance accounts indicate the net favorable or unfavorable variance for the period. These variances may be reported in an income statement prepared for management's use.

Exhibit 9 is an example of an income statement for Western Rider Inc. that includes variances. In Exhibit 9, a sales price of $28 per pair of jeans, selling expenses of $14,500, and administrative expenses of $11,225 are assumed.

EXHIBIT 9

Variance from Standards in Income Statement

Western Rider Inc.
Income Statement
For the Month Ended June 30, 2012

	Favorable	Unfavorable	
Sales			$140,000[1]
Cost of goods sold—at standard			97,500[2]
Gross profit—at standard			$ 42,500
Less variances from standard cost:			
Direct materials price		$ 3,650	
Direct materials quantity	$1,000		
Direct labor rate		3,850	
Direct labor time	1,350		
Factory overhead controllable	4,000		
Factory overhead volume		2,400	3,550
Gross profit			$ 38,950
Operating expenses:			
Selling expenses		$14,500	
Administrative expenses		11,225	25,725
Income before income tax			$ 13,225

[1] 5,000 × $28

[2] $37,500 + $36,000 + $24,000 (from Exhibit 2), or 5,000 × $19.50 (from Exhibit 1)

The income statement shown in Exhibit 9 is for internal use by management. That is, variances are not reported to external users. Thus, the variances shown in Exhibit 9 must be transferred to other accounts in preparing an income statement for external users.

In preparing an income statement for external users, the balances of the variance accounts are normally transferred to Cost of Goods Sold. However, if the variances are significant or if many of the products manufactured are still in inventory, the variances

should be allocated to Work in Process, Finished Goods, and Cost of Goods Sold. Such an allocation, in effect, converts these account balances from standard cost to actual cost.

Example Exercise 23-6 Income Statement with Variances

Obj. 5

Prepare an income statement for the year ended December 31, 2012, through gross profit for Tip Top Corp. using the variance data in Example Exercises 23-1 through 23-4. Assume Tip Top sold 3,000 units at $100 per unit.

Follow My Example 23-6

Tip Top Corp.
Income Statement through Gross Profit
For the Year Ended December 31, 2012

	Favorable	Unfavorable	
Sales (3,000 units × $100)			$300,000
Cost of goods sold—at standard			194,250*
Gross profit—at standard			$105,750
Less variances from standard cost:			
Direct materials price (EE23-1)	$2,775		
Direct materials quantity (EE23-1)		$2,250	
Direct labor rate (EE23-2)		2,226	
Direct labor time (EE23-2)	960		
Factory overhead controllable (EE23-3)		350	
Factory overhead volume (EE23-4)		450	1,541
Gross profit—actual			$104,209

*Direct materials (3,000 units × 6 lbs. × $4.50)	$ 81,000
Direct labor (3,000 units × 2.5 hrs. × $12.00)	90,000
Factory overhead [3,000 units × 2.5 hrs. × ($2.20 + $0.90)]	23,250
Cost of goods sold at standard	$194,250

Practice Exercises: **PE 23-6A, PE 23-6B**

Obj. 6 Describe and provide examples of nonfinancial performance measures.

Nonfinancial Performance Measures

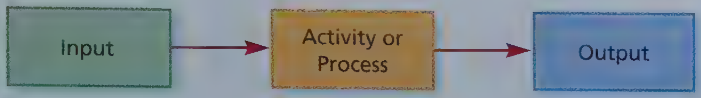
Many companies supplement standard costs and variances from standards with nonfinancial performance measures. A **nonfinancial performance measure** expresses performance in a measure other than dollars. For example, airlines use on-time performance, percent of bags lost, and number of customer complaints as nonfinancial performance measures. Such measures are often used to evaluate the time, quality, or quantity of a business activity.

Using financial and nonfinancial performance measures aids managers and employees in considering multiple performance objectives. Such measures often bring additional perspectives, such as quality of work, to evaluating performance. Some examples of nonfinancial performance measures include the following:

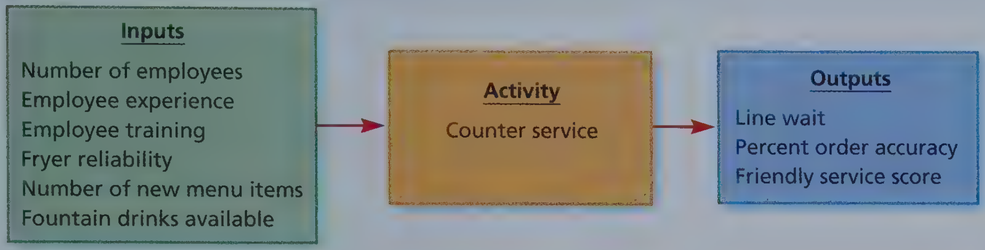
Nonfinancial Performance Measures

Inventory turnover
Percent on-time delivery
Elapsed time between a customer order and product delivery
Customer preference rankings compared to competitors
Response time to a service call
Time to develop new products
Employee satisfaction
Number of customer complaints

Nonfinancial measures are often linked to either the inputs or outputs of an activity or process. A **process** is a sequence of activities for performing a task. The relationship between an activity or a process and its inputs and outputs is shown below.



To illustrate, the counter service activity of a fast-food restaurant is used. The following inputs/outputs could be identified for providing customer service:



The customer service outputs of the counter service activity include the following:

1. Line wait for the customer
2. Percent order accuracy in serving the customer
3. Friendly service experience for the customer

Some of the inputs that impact the customer service outputs include the following:

1. Number of employees
2. Employee experience
3. Employee training
4. Fryer (and other cooking equipment) reliability
5. Number of new menu items
6. Fountain drink availability

A fast-food restaurant can develop a set of linked nonfinancial performance measures across inputs and outputs. The output measures tell management how the activity is performing, such as keeping the line wait to a minimum. The input measures are used to improve the output measures. For example, if the customer line wait is too long, then improving employee training or hiring more employees could improve the output (decrease customer line wait).

Example Exercise 23-7 Activity Inputs and Outputs

The following are inputs and outputs to the baggage claim process of an airline:

Baggage handler training
Time customers wait for returned baggage
Maintenance of baggage handling equipment
Number of baggage handlers
Number of damaged bags
On-time flight performance

Identify whether each is an input or output to the baggage claim process.

Follow My Example 23-7

Baggage handler training	Input
Time customers wait for returned baggage	Output
Maintenance of baggage handling equipment	Input
Number of baggage handlers	Input
Number of damaged bags	Output
On-time flight performance	Input

Practice Exercises: **PE 23-7A, PE 23-7B**

At a Glance 23

OBJ. 1 Describe the types of standards and how they are established.

Key Points Standards represent performance benchmarks that can be compared to actual results in evaluating performance. Standards are established so that they are neither too high nor too low, but are attainable.

Learning Outcomes	Example Exercises	Practice Exercises
• Define *ideal* and *normal standards* and explain how they are used in setting standards.		
• Describe some of the criticisms of the use of standards.		

OBJ. 2 Describe and illustrate how standards are used in budgeting.

Key Points Budgets are prepared by multiplying the standard cost per unit by the planned production. To measure performance, the standard cost per unit is multiplied by the actual number of units produced, and the actual results are compared with the standard cost at actual volumes (cost variance).

Learning Outcomes	Example Exercises	Practice Exercises
• Compute the standard cost per unit of production for materials, labor, and factory overhead.		
• Compute the direct materials, direct labor, and factory overhead cost variances.		
• Prepare a budget performance report.		

OBJ. 3 Compute and interpret direct materials and direct labor variances.

Key Points The direct materials cost variance can be separated into direct materials price and quantity variances. The direct labor cost variance can be separated into direct labor rate and time variances.

Learning Outcomes	Example Exercises	Practice Exercises
• Compute and interpret direct materials price and quantity variances.	EE23-1	PE23-1A, 23-1B
• Compute and interpret direct labor rate and time variances.	EE23-2	PE23-2A, 23-2B
• Describe and illustrate how time standards are used in nonmanufacturing settings.		

OBJ. 4

Compute and interpret factory overhead controllable and volume variances.

Key Points The factory overhead cost variance can be separated into a variable factory overhead controllable variance and a fixed factory overhead volume variance.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare a factory overhead flexible budget.		
• Compute and interpret the variable factory overhead controllable variance.	EE23-3	PE23-3A, 23-3B
• Compute and interpret the fixed factory overhead volume variance.	EE23-4	PE23-4A, 23-4B
• Prepare a factory overhead cost variance report.		
• Evaluate factory overhead variances using a T account.		

OBJ. 5

Journalize the entries for recording standards in the accounts and prepare an income statement that includes variances from standard.

Key Points Standard costs and variances can be recorded in the accounts at the same time the manufacturing costs are recorded in the accounts. Work in Process is debited at standard. Under a standard cost system, the cost of goods sold will be reported at standard cost. Manufacturing variances can be disclosed on the income statement to adjust the gross profit at standard to the actual gross profit.

Learning Outcomes	Example Exercises	Practice Exercises
• Journalize the entries to record the purchase and use of direct materials at standard, recording favorable or unfavorable variances.	EE23-5	PE23-5A, 23-5B
• Prepare an income statement, disclosing favorable and unfavorable direct materials, direct labor, and factory overhead variances.	EE23-6	PE23-6A, 23-6B

OBJ. 6

Describe and provide examples of nonfinancial performance measures.

Key Points Many companies use a combination of financial and nonfinancial measures in order for multiple perspectives to be incorporated in evaluating performance. Nonfinancial measures are often used in conjunction with the inputs or outputs of a process or an activity.

Learning Outcomes	Example Exercises	Practice Exercises
• Define, provide the rationale for, and provide examples of nonfinancial performance measures.		
• Identify nonfinancial inputs and outputs of an activity.	EE23-7	PE23-7A, 23-7B

Key Terms

budget performance report (1071)
budgeted variable factory overhead (1080)
controllable variance (1079)
cost variance (1071)
currently attainable standards (1069)
direct labor rate variance (1076)
direct labor time variance (1077)
direct materials price variance (1074)
direct materials quantity variance (1074)
factory overhead cost variance report (1083)
favorable cost variance (1071)
ideal standards (1069)
nonfinancial performance measure (1088)
process (1088)
standard cost (1068)
standard cost systems (1068)
standards (1068)
total manufacturing cost variance (1072)
unfavorable cost variance (1071)
volume variance (1081)

Illustrative Problem

Hawley Inc. manufactures woven baskets for national distribution. The standard costs for the manufacture of Folk Art style baskets were as follows:

	Standard Costs	Actual Costs
Direct materials	1,500 lbs. at \$35	1,600 lbs. at \$32
Direct labor	4,800 hrs. at \$11	4,500 hrs. at \$11.80
Factory overhead	Rates per labor hour, based on 100% of normal capacity of 5,500 labor hrs.:	
	Variable cost, \$2.40	\$12,300 variable cost
	Fixed cost, \$3.50	\$19,250 fixed cost

Instructions

1. Determine the quantity variance, price variance, and total direct materials cost variance for the Folk Art style baskets.
2. Determine the time variance, rate variance, and total direct labor cost variance for the Folk Art style baskets.
3. Determine the controllable variance, volume variance, and total factory overhead cost variance for the Folk Art style baskets.

Solution

1. **Direct Materials Cost Variance**

Quantity variance:

Direct Materials Quantity Variance = (Actual Quantity – Standard Quantity) × Standard Price
Direct Materials Quantity Variance = (1,600 lbs. – 1,500 lbs.) × \$35 per lb.
Direct Materials Quantity Variance = \$3,500 Unfavorable Variance

Price variance:

Direct Materials Price Variance = (Actual Price – Standard Price) × Actual Quantity
Direct Materials Price Variance = (\$32 per lb. – \$35 per lb.) × 1,600 lbs.
Direct Materials Price Variance = –\$4,800 Favorable Variance

Total direct materials cost variance:

Direct Materials Cost Variance = Direct Materials Quantity Variance + Direct Materials Price Variance
Direct Materials Cost Variance = \$3,500 + (\$4,800)
Direct Materials Cost Variance = –\$1,300 Favorable Variance

2.

Direct Labor Cost Variance

Time variance:

Direct Labor Time Variance = (Actual Direct Labor Hours – Standard Direct Labor Hours) × Standard Rate per Hour
Direct Labor Time Variance = (4,500 hrs. – 4,800 hrs.) × $11 per hour
Direct Labor Time Variance = –$3,300 Favorable Variance

Rate variance:

Direct Labor Rate Variance = (Actual Rate per Hour – Standard Rate per Hour) × Actual Hours
Direct Labor Rate Variance = ($11.80 – $11.00) × 4,500 hrs.
Direct Labor Rate Variance = $3,600 Unfavorable Variance

Total direct labor cost variance:

Direct Labor Cost Variance = Direct Labor Time Variance + Direct Labor Rate Variance
Direct Labor Cost Variance = ($3,300) + $3,600
Direct Labor Cost Variance = $300 Unfavorable Variance

3.

Factory Overhead Cost Variance

Variable factory overhead controllable variance:

Variable Factory Overhead Controllable Variance = Actual Variable Factory Overhead – Budgeted Variable Factory Overhead
Variable Factory Overhead Controllable Variance = $12,300 – $11,520*
Variable Factory Overhead Controllable Variance = $780 Unfavorable Variance
*4,800 hrs. × $2.40 per hour

Fixed factory overhead volume variance:

$$\text{Fixed Factory Overhead Volume Variance} = \left(\begin{array}{l}\text{Standard Hours for 100\%}\\ \text{of Normal Capacity}\end{array} - \begin{array}{l}\text{Standard Hours for}\\ \text{Actual Units Produced}\end{array}\right) \times \begin{array}{l}\text{Fixed Factory}\\ \text{Overhead Rate}\end{array}$$

Fixed Factory Overhead Volume Variance = (5,500 hrs. – 4,800 hrs.) × $3.50 per hr.
Fixed Factory Overhead Volume Variance = $2,450 Unfavorable Variance

Total factory overhead cost variance:

Factory Overhead Cost Variance = Variable Factory Overhead Controllable Variance + Fixed Factory Overhead Volume Variance
Factory Overhead Cost Variance = $780 + $2,450
Factory Overhead Cost Variance = $3,230 Unfavorable Variance

Discussion Questions

1. What are the basic objectives in the use of standard costs?
2. What is meant by reporting by the "principle of exceptions," as the term is used in reference to cost control?
3. a. What are the two variances between the actual cost and the standard cost for direct materials?
   b. Discuss some possible causes of these variances.
4. The materials cost variance report for Nickols Inc. indicates a large favorable materials price variance and a significant unfavorable materials quantity variance. What might have caused these offsetting variances?
5. a. What are the two variances between the actual cost and the standard cost for direct labor?
   b. Who generally has control over the direct labor cost?
6. A new assistant controller recently was heard to remark: "All the assembly workers in this plant are covered by union contracts, so there should be no labor variances." Was the controller's remark correct? Discuss.
7. Would the use of standards be appropriate in a nonmanufacturing setting, such as a fast-food restaurant?
8. a. Describe the two variances between the actual costs and the standard costs for factory overhead.
   b. What is a factory overhead cost variance report?
9. If variances are recorded in the accounts at the time the manufacturing costs are incurred, what does a debit balance in Direct Materials Price Variance represent?
10. Briefly explain why firms might use nonfinancial performance measures.

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 3 **EE 23-1** *p. 1076*

PE 23-1A Direct materials variances

Primm Company produces a product that requires four standard gallons per unit. The standard price is $24.50 per gallon. If 2,500 units required 10,600 gallons, which were purchased at $23.75 per gallon, what is the direct materials (a) price variance, (b) quantity variance, and (c) cost variance?

OBJ. 3 **EE 23-1** *p. 1076*

PE 23–1B Direct materials variances

Young Company produces a product that requires five standard pounds per unit. The standard price is $0.90 per pound. If 500 units required 2,350 pounds, which were purchased at $1.10 per pound, what is the direct materials (a) price variance, (b) quantity variance, and (c) cost variance?

OBJ. 3 **EE 23-2** *p. 1078*

PE 23-2A Direct labor variances

Primm Company produces a product that requires three standard hours per unit at a standard hourly rate of $20 per hour. If 2,500 units required 7,900 hours at an hourly rate of $21.50 per hour, what is the direct labor (a) rate variance, (b) time variance, and (c) cost variance?

OBJ. 3 **EE 23-2** *p. 1078*

PE 23-2B Direct labor variances

Young Company produces a product that requires 2.5 standard hours per unit at a standard hourly rate of $9 per hour. If 500 units required 1,200 hours at an hourly rate of $8.75 per hour, what is the direct labor (a) rate variance, (b) time variance, and (c) cost variance?

OBJ. 4 **EE 23-3** *p. 1080*

PE 23-3A Factory overhead controllable variance

Primm Company produced 2,500 units of product that required three standard hours per unit. The standard variable overhead cost per unit is $2.50 per hour. The actual variable factory overhead was $19,050. Determine the variable factory overhead controllable variance.

OBJ. 4 **EE 23-3** *p. 1080*

PE 23-3B Factory overhead controllable variance

Young Company produced 500 units of product that required 2.5 standard hours per unit. The standard variable overhead cost per unit is $0.70 per hour. The actual variable factory overhead was $840. Determine the variable factory overhead controllable variance.

OBJ. 4 **EE 23-4** *p. 1082*

PE 23-4A Factory overhead volume variance

Primm Company produced 2,500 units of product that required three standard hours per unit. The standard fixed overhead cost per unit is $1.30 per hour at 7,000 hours, which is 100% of normal capacity. Determine the fixed factory overhead volume variance.

OBJ. 4 **EE 23-4** *p. 1082*

PE 23-4B Factory overhead volume variance

Young Company produced 500 units of product that required 2.5 standard hours per unit. The standard fixed overhead cost per unit is $0.30 per hour at 1,500 hours, which is 100% of normal capacity. Determine the fixed factory overhead volume variance.

Learning Objectives *Example Exercises*

OBJ. 5 **EE 23-5** *p. 1086*

PE 23-5A Standard cost journal entries

Primm Company produced 2,500 units that require four standard gallons per unit at $24.50 standard price per gallon. The company actually used 10,600 gallons in production. Journalize the entry to record the standard direct materials used in production.

OBJ. 5 **EE 23-5** *p. 1086*

PE 23-5B Standard cost journal entries

Young Company produced 500 units that require five standard pounds per unit at $0.90 standard price per pound. The company actually used 2,350 pounds in production. Journalize the entry to record the standard direct materials used in production.

OBJ. 5 **EE 23-6** *p. 1088*

PE 23-6A Income statement with variances

Prepare a 2012 income statement through gross profit for Primm Company using the variance data in Practice Exercises 23-1A, 23-2A, 23-3A, and 23-4A. Assume Primm sold 2,500 units at $320 per unit.

OBJ. 5 **EE 23-6** *p. 1088*

PE 23-6B Income statement with variances

Prepare a 2012 income statement through gross profit for Young Company using the variance data in Practice Exercises 23-1B, 23-2B, 23-3B, and 23-4B. Assume Young sold 500 units at $82 per unit.

OBJ. 6 **EE 23-7** *p. 1089*

PE 23-7A Activity inputs and outputs

The following are inputs and outputs to the copying process of a copy shop:

Number of pages copied per hour
Number of customer complaints
Number of times paper supply runs out
Number of employee errors
Copy machine downtime (broken)
Percent jobs done on time

Identify whether each is an input or output to the copying process.

OBJ. 6 **EE 23-7** *p. 1089*

PE 23-7B Activity inputs and outputs

The following are inputs and outputs to the cooking process of a restaurant:

Number of unexpected cook absences
Number of server order mistakes
Percent of meals prepared on time
Number of times ingredients are missing
Number of customer complaints
Number of hours kitchen equipment is down for repairs

Identify whether each is an input or output to the cooking process.

Exercises

OBJ. 2

EX 23-1 Standard direct materials cost per unit

Geneva Chocolate Company produces chocolate bars. The primary materials used in producing chocolate bars are cocoa, sugar, and milk. The standard costs for a batch of chocolate (5,000 bars) are as follows:

Ingredient	Quantity	Price
Cocoa	510 lbs.	$0.70 per lb.
Sugar	150 lbs.	$1.18 per lb.
Milk	120 gal.	$1.80 per gal.

Determine the standard direct materials cost per bar of chocolate.

OBJ. 2

EX 23-2 Standard product cost

Cumberland Furniture Company manufactures unfinished oak furniture. Cumberland uses a standard cost system. The direct labor, direct materials, and factory overhead standards for an unfinished dining room table are as follows:

Direct labor:	standard rate	$16.00 per hr.
	standard time per unit	1.8 hrs.
Direct materials (oak):	standard price	$12.50 per bd. ft.
	standard quantity	17 bd. ft.
Variable factory overhead:	standard rate	$2.40 per direct labor hr.
Fixed factory overhead:	standard rate	$1.10 per direct labor hr.

a. Determine the standard cost per dining room table.

b. Why would Cumberland use a standard cost system?

OBJ. 2

✔ b. Direct labor cost variance, $700 F

EX 23-3 Budget performance report

PET Bottle Company (PBC) manufactures plastic two-liter bottles for the beverage industry. The cost standards per 100 two-liter bottles are as follows:

Cost Category	Standard Cost per 100 Two-Liter Bottles
Direct labor	$1.32
Direct materials	5.34
Factory overhead	0.34
Total	$7.00

At the beginning of March, PBC management planned to produce 450,000 bottles. The actual number of bottles produced for March was 500,000 bottles. The actual costs for March of the current year were as follows:

Cost Category	Actual Cost for the Month Ended March 31, 2012
Direct labor	$ 5,900
Direct materials	25,300
Factory overhead	1,900
Total	$33,100

a. Prepare the March manufacturing standard cost budget (direct labor, direct materials, and factory overhead) for PBC, assuming planned production.

b. Prepare a budget performance report for manufacturing costs, showing the total cost variances for direct materials, direct labor, and factory overhead for March.

c. Interpret the budget performance report.

OBJ. 3

✔ a. Price variance, $2,155 U

EX 23-4 Direct materials variances

The following data relate to the direct materials cost for the production of 2,000 automobile tires:

Actual:	43,100 lbs. at $2.05	$88,355
Standard:	44,100 lbs. at $2.00	$88,200

a. Determine the price variance, quantity variance, and total direct materials cost variance.

b. To whom should the variances be reported for analysis and control?

OBJ. 3

✔ Quantity variance, $258 U

EX 23-5 Direct materials variances

MyTime, Inc., produces electronic timepieces. The company uses mini-LCD displays for its products. Each timepiece uses one display. The company produced 540 timepieces during October. However, due to LCD defects, the company actually used 570 LCD displays

during October. Each display has a standard cost of $8.60. Five hundred seventy LCD displays were purchased for October production at a cost of $4,560.

Determine the price variance, quantity variance, and total direct materials cost variance for October.

OBJ. 2, 3

EX 23-6 Standard direct materials cost per unit from variance data

The following data relating to direct materials cost for November of the current year are taken from the records of Tot Toys Inc., a manufacturer of plastic toys:

Quantity of direct materials used	2,000 lbs.
Actual unit price of direct materials	$2.40 per lb.
Units of finished product manufactured	460 units
Standard direct materials per unit of finished product	4 lbs.
Direct materials quantity variance—unfavorable	$500
Direct materials price variance—favorable	$1,450

Determine the standard direct materials cost per unit of finished product, assuming that there was no inventory of work in process at either the beginning or the end of the month.

OBJ. 2, 3

EX 23-7 Standard product cost, direct materials variance

H.J. Heinz Company uses standards to control its materials costs. Assume that a batch of ketchup (1,500 pounds) has the following standards:

	Standard Quantity	Standard Price
Whole tomatoes	2,400 lbs.	$0.45 per lb.
Vinegar	160 gal.	2.75 per gal.
Corn syrup	14 gal.	10.00 per gal.
Salt	62 lbs.	2.50 per lb.

The actual materials in a batch may vary from the standard due to tomato characteristics. Assume that the actual quantities of materials for batch K-54 were as follows:

2,540 lbs. of tomatoes
164 gal. of vinegar
13 gal. of corn syrup
60 lbs. of salt

a. Determine the standard unit materials cost per pound for a standard batch.

b. Determine the direct materials quantity variance for batch K-54.

OBJ. 3

✔ a. Rate variance, $1,035 F

EX 23-8 Direct labor variances

The following data relate to labor cost for production of 5,500 cellular telephones:

Actual:	3,450 hrs. at $16.40	$56,580
Standard:	3,390 hrs. at $16.70	$56,613

a. Determine the rate variance, time variance, and total direct labor cost variance.

b. Discuss what might have caused these variances.

OBJ. 3, 5

✔ a. Time variance, $284 U

EX 23-9 Direct labor variances

Provence Bicycle Company manufactures road bikes. The following data for September of the current year are available:

Quantity of direct labor used	650 hrs.
Actual rate for direct labor	$14.00 per hr.
Bicycles completed in September	280
Standard direct labor per bicycle	2.25 hrs.
Standard rate for direct labor	$14.20 per hr.

a. Determine the direct labor rate and time variances.

b. How much direct labor should be debited to Work in Process?

OBJ. 3

✓ a. Cutting Department rate variance, $700 favorable

EX 23-10 Direct labor variances

The New Day Clothes Company produced 18,000 units during June of the current year. The Cutting Department used 3,500 direct labor hours at an actual rate of $11.80 per hour. The Sewing Department used 5,800 direct labor hours at an actual rate of $12.15 per hour. Assume there were no work in process inventories in either department at the beginning or end of the month. The standard labor rate is $12.00. The standard labor time for the Cutting and Sewing departments is 0.19 hour and 0.33 hour per unit, respectively.

a. Determine the direct labor rate and time variance for the (1) Cutting Department and (2) Sewing Department.

b. Interpret your results.

OBJ. 3

✓ a. $960

EX 23-11 Direct labor standards for nonmanufacturing expenses

Good Samaritan Hospital began using standards to evaluate its Admissions Department. The standard was broken into two types of admissions as follows:

Type of Admission	Standard Time to Complete Admission Record
Unscheduled admission	40 min.
Scheduled admission	10 min.

The unscheduled admission took longer, since name, address, and insurance information needed to be determined at the time of admission. Information was collected on scheduled admissions prior to the admissions, which was less time consuming.

The Admissions Department employs two full-time people (40 productive hours per week, with no overtime) at $12 per hour. For the most recent week, the department handled 60 unscheduled and 210 scheduled admissions.

a. How much was actually spent on labor for the week?

b. What are the standard hours for the actual volume for the week?

c. Calculate a time variance, and report how well the department performed for the week.

OBJ. 2, 3

EX 23-12 Direct labor standards for nonmanufacturing operations

One of the operations in the United States Postal Service is a mechanical mail sorting operation. In this operation, letter mail is sorted at a rate of one letter per second. The letter is mechanically sorted from a three-digit code input by an operator sitting at a keyboard. The manager of the mechanical sorting operation wishes to determine the number of temporary employees to hire for December. The manager estimates that there will be an additional 35,100,000 pieces of mail in December, due to the upcoming holiday season.

Assume that the sorting operators are temporary employees. The union contract requires that temporary employees be hired for one month at a time. Each temporary employee is hired to work 150 hours in the month.

a. How many temporary employees should the manager hire for December?

b. If each employee earns a standard $16 per hour, what would be the labor time variance if the actual number of letters sorted in December was 34,020,000?

OBJ. 3

✓ Direct materials quantity variance, $300 U

EX 23-13 Direct materials and direct labor variances

At the beginning of June, Marshall Printing Company budgeted 16,000 books to be printed in June at standard direct materials and direct labor costs as follows:

Direct materials	$24,000
Direct labor	8,000
Total	$32,000

The standard materials price is $0.75 per pound. The standard direct labor rate is $12.50 per hour. At the end of June, the actual direct materials and direct labor costs were as follows:

Actual direct materials	$21,300
Actual direct labor	6,800
Total	$28,100

There were no direct materials price or direct labor rate variances for June. In addition, assume no changes in the direct materials inventory balances in June. Marshall Printing Company actually produced 14,000 units during June.

Determine the direct materials quantity and direct labor time variances.

OBJ. 4

✔ Total factory overhead, 12,000 hrs., $218,760

EX 23-14 Flexible overhead budget

Carson Wood Products Company prepared the following factory overhead cost budget for the Press Department for April 2012, during which it expected to require 10,000 hours of productive capacity in the department:

Variable overhead cost:		
Indirect factory labor	$83,000	
Power and light	3,800	
Indirect materials	28,000	
Total variable cost		$114,800
Fixed overhead cost:		
Supervisory salaries	$40,000	
Depreciation of plant and equipment	25,000	
Insurance and property taxes	16,000	
Total fixed cost		81,000
Total factory overhead cost		$195,800

Assuming that the estimated costs for May are the same as for April, prepare a flexible factory overhead cost budget for the Press Department for May for 8,000, 10,000, and 12,000 hours of production.

OBJ. 4

EX 23-15 Flexible overhead budget

Van Dyck Company has determined that the variable overhead rate is $3.90 per direct labor hour in the Fabrication Department. The normal production capacity for the Fabrication Department is 14,000 hours for the month. Fixed costs are budgeted at $72,800 for the month.

a. Prepare a monthly factory overhead flexible budget for 13,000, 14,000, and 15,000 hours of production.

b. How much overhead would be applied to production if 15,000 hours were used in the department during the month?

OBJ. 4

✔ Volume variance, $7,125 U

EX 23-16 Factory overhead cost variances

The following data relate to factory overhead cost for the production of 4,000 computers:

Actual:	Variable factory overhead	$130,000
	Fixed factory overhead	30,875
Standard:	5,000 hrs. at $32	160,000

If productive capacity of 100% was 6,500 hours and the factory overhead cost budgeted at the level of 5,000 standard hours was $167,125, determine the variable factory overhead controllable variance, fixed factory overhead volume variance, and total factory overhead cost variance. The fixed factory overhead rate was $4.75 per hour.

OBJ. 4

✓ a. $11,750 F

EX 23-17 Factory overhead cost variances

Casual Comfort Textiles Corporation began January with a budget for 30,000 hours of production in the Weaving Department. The department has a full capacity of 40,000 hours under normal business conditions. The budgeted overhead at the planned volumes at the beginning of January was as follows:

Variable overhead	$124,500
Fixed overhead	62,000
Total	$186,500

The actual factory overhead was $178,900 for January. The actual fixed factory overhead was as budgeted. During January, the Weaving Department had standard hours at actual production volume of 31,000 hours.

a. Determine the variable factory overhead controllable variance.

b. Determine the fixed factory overhead volume variance.

OBJ. 4

EX 23-18 Factory overhead variance corrections

The data related to Elite Sporting Goods Company's factory overhead cost for the production of 50,000 units of product are as follows:

Actual:	Variable factory overhead	$218,900
	Fixed factory overhead	157,500
Standard:	76,000 hrs. at $5.00 ($2.90 for variable factory overhead)	380,000

Productive capacity at 100% of normal was 75,000 hours, and the factory overhead cost budgeted at the level of 76,000 standard hours was $377,900. Based on these data, the chief cost accountant prepared the following variance analysis:

Variable factory overhead controllable variance:		
Actual variable factory overhead cost incurred	$218,900	
Budgeted variable factory overhead for 76,000 hours	220,400	
Variance—favorable		–$1,500
Fixed factory overhead volume variance:		
Normal productive capacity at 100%	75,000 hrs.	
Standard for amount produced	76,000	
Productive capacity not used	1,000 hrs.	
Standard variable factory overhead rate	× $5.00	
Variance—unfavorable		5,000
Total factory overhead cost variance—unfavorable		$3,500

Identify the errors in the factory overhead cost variance analysis.

OBJ. 4

✓ Net controllable variance, $250 F

EX 23-19 Factory overhead cost variance report

Medical Molded Products Inc. prepared the following factory overhead cost budget for the Trim Department for March 2012, during which it expected to use 10,000 hours for production:

Variable overhead cost:		
Indirect factory labor	$29,000	
Power and light	7,500	
Indirect materials	13,000	
Total variable cost		$ 49,500
Fixed overhead cost:		
Supervisory salaries	$34,100	
Depreciation of plant and equipment	24,800	
Insurance and property taxes	22,100	
Total fixed cost		81,000
Total factory overhead cost		$130,500

Medical Molded Products has available 15,000 hours of monthly productive capacity in the Trim Department under normal business conditions. During March, the Trim Department actually used 11,000 hours for production. The actual fixed costs were as budgeted. The actual variable overhead for March was as follows:

Actual variable factory overhead cost:	
Indirect factory labor	$31,100
Power and light	8,100
Indirect materials	15,000
Total variable cost	$54,200

Construct a factory overhead cost variance report for the Trim Department for March.

OBJ. 5

EX 23-20 Recording standards in accounts

Gemini Manufacturing Company incorporates standards in its accounts and identifies variances at the time the manufacturing costs are incurred. Journalize the entries to record the following transactions:

a. Purchased 1,700 units of copper tubing on account at $68.90 per unit. The standard price is $65.00 per unit.

b. Used 1,000 units of copper tubing in the process of manufacturing 140 air conditioners. Eight units of copper tubing are required, at standard, to produce one air conditioner.

OBJ. 5

EX 23-21 Recording standards in accounts

The Assembly Department produced 2,000 units of product during June. Each unit required 1.75 standard direct labor hours. There were 3,800 actual hours used in the Assembly Department during June at an actual rate of $14.60 per hour. The standard direct labor rate is $15 per hour. Assuming direct labor for a month is paid on the fifth day of the following month, journalize the direct labor in the Assembly Department on June 30.

OBJ. 5

✔ Income before income tax, $61,200

EX 23-22 Income statement indicating standard cost variances

The following data were taken from the records of Gentry Company for December 2012:

Administrative expenses	$ 72,000
Cost of goods sold (at standard)	390,000
Direct materials price variance—unfavorable	1,200
Direct materials quantity variance—favorable	400
Direct labor rate variance—favorable	800
Direct labor time variance—unfavorable	350
Variable factory overhead controllable variance—favorable	150
Fixed factory overhead volume variance—unfavorable	2,200
Interest expense	2,100
Sales	620,000
Selling expenses	92,300

Prepare an income statement for presentation to management.

OBJ. 6

EX 23-23 Nonfinancial performance measures

Ace, Inc., is an Internet retailer of golf equipment. Customers order golf equipment from the company, using an online catalog. The company processes these orders and delivers the requested product from its warehouse. The company wants to provide customers with an excellent purchase experience in order to expand the business through favorable word-of-mouth advertising and to drive repeat business. To help monitor performance, the company developed a set of performance measures for its order placement and delivery process.

Average computer response time to customer "clicks"
Dollar amount of returned goods
Elapsed time between customer order and product delivery
Maintenance dollars divided by hardware investment
Number of customer complaints divided by the number of orders
Number of misfilled orders divided by the number of orders
Number of orders per warehouse employee
Number of page faults or errors due to software programming errors
Number of software fixes per week
Server (computer) downtime
Training dollars per programmer

a. For each performance measure, identify it as either an input or output measure related to the "order placement and delivery" process.

b. Provide an explanation for each performance measure.

OBJ. 6

EX 23-24 Nonfinancial performance measures

Lake Area College wishes to monitor the efficiency and quality of its course registration process.

a. Identify three input and three output measures for this process.

b. Why would Lake Area College use nonfinancial measures for monitoring this process?

Problems Series A

OBJ. 2, 3

✔ c. Direct labor time variance, $2,900 U

PR 23-1A Direct materials and direct labor variance analysis

Oasis Faucet Company manufactures faucets in a small manufacturing facility. The faucets are made from zinc. Manufacturing has 50 employees. Each employee presently provides 36 hours of labor per week. Information about a production week is as follows:

Standard wage per hr.	$14.50
Standard labor time per faucet	12 min.
Standard number of lbs. of zinc	1.8 lbs.
Standard price per lb. of zinc	$12.00
Actual price per lb. of zinc	$11.75
Actual lbs. of zinc used during the week	15,100 lbs.
Number of faucets produced during the week	8,000
Actual wage per hr.	$15.10
Actual hrs. per week	1,800 hrs.

Instructions

Determine (a) the standard cost per unit for direct materials and direct labor; (b) the price variance, quantity variance, and total direct materials cost variance; and (c) the rate variance, time variance, and total direct labor cost variance.

OBJ. 1, 2, 3

✔ 1. a. Direct materials quantity variance, $350 F

PR 23-2A Flexible budgeting and variance analysis

Belgian Chocolate Company makes dark chocolate and light chocolate. Both products require cocoa and sugar. The following planning information has been made available:

	Standard Amount per Case		
	Dark Chocolate	Light Chocolate	Standard Price per Pound
Cocoa	10 lbs.	7 lbs.	$4.50
Sugar	8 lbs.	12 lbs.	0.65
Standard labor time	0.35 hr.	0.40 hr.	

	Dark Chocolate	Light Chocolate
Planned production	4,200 cases	10,500 cases
Standard labor rate	$14.50 per hr.	$14.50 per hr.

Belgian Chocolate does not expect there to be any beginning or ending inventories of cocoa or sugar. At the end of the budget year, Belgian Chocolate had the following actual results:

	Dark Chocolate	Light Chocolate
Actual production (cases)	4,000	11,000
	Actual Price per Pound	**Actual Pounds Purchased and Used**
Cocoa	$4.60	117,500
Sugar	0.60	160,000
	Actual Labor Rate	**Actual Labor Hours Used**
Dark chocolate	$13.90 per hr.	1,270
Light chocolate	14.90 per hr.	4,500

Instructions

1. Prepare the following variance analyses for both chocolates and total, based on the actual results and production levels at the end of the budget year:
   a. Direct materials price, quantity, and total variance.
   b. Direct labor rate, time, and total variance.
2. Why are the standard amounts in part (1) based on the actual production for the year instead of the planned production for the year?

OBJ. 3, 4
✔ c. Controllable variance, $260 F

PR 23-3A Direct materials, direct labor, and factory overhead cost variance analysis

Specialty Polymers, Inc., processes a base chemical into plastic. Standard costs and actual costs for direct materials, direct labor, and factory overhead incurred for the manufacture of 19,000 units of product were as follows:

	Standard Costs	Actual Costs
Direct materials	2,500 lbs. at $8.10	2,440 lbs. at $8.30
Direct labor	3,800 hrs. at $17.50	3,750 hrs. at $17.68
Factory overhead	Rates per direct labor hr., based on 100% of normal capacity of 3,900 direct labor hrs.:	
	Variable cost, $2.20	$8,100 variable cost
	Fixed cost, $3.50	$13,650 fixed cost

Each unit requires 0.2 hour of direct labor.

Instructions

Determine (a) the price variance, quantity variance, and total direct materials cost variance; (b) the rate variance, time variance, and total direct labor cost variance; and (c) variable factory overhead controllable variance, the fixed factory overhead volume variance, and total factory overhead cost variance.

OBJ. 4
✔ Controllable variance, $280 U

PR 23-4A Standard factory overhead variance report

Tiger Equipment Inc., a manufacturer of construction equipment, prepared the following factory overhead cost budget for the Welding Department for May 2012. The company expected to operate the department at 100% of normal capacity of 7,000 hours.

Variable costs:		
Indirect factory wages	$22,050	
Power and light	12,600	
Indirect materials	10,500	
Total variable cost		$45,150

Fixed costs:		
Supervisory salaries	$12,000	
Depreciation of plant and equipment	31,450	
Insurance and property taxes	9,750	
Total fixed cost		53,200
Total factory overhead cost		$98,350

During May, the department operated at 7,400 standard hours, and the factory overhead costs incurred were indirect factory wages, $23,580; power and light, $13,120; indirect materials, $11,310; supervisory salaries, $12,000; depreciation of plant and equipment, $31,450; and insurance and property taxes, $9,750.

Instructions

Prepare a factory overhead cost variance report for May. To be useful for cost control, the budgeted amounts should be based on 7,400 hours.

OBJ. 3, 6

✔ 3. $1,120 U

PR 23-5A Standards for nonmanufacturing expenses

Diamond Software, Inc., does software development. One important activity in software development is writing software code. The manager of the WordPro Development Team determined that the average software programmer could write 40 lines of code in an hour. The plan for the first week in May called for 6,200 lines of code to be written on the WordPro product. The WordPro Team has four programmers. Each programmer is hired from an employment firm that requires temporary employees to be hired for a minimum of a 40-hour week. Programmers are paid $25.00 per hour. The manager offered a bonus if the team could generate more lines for the week, without overtime. Due to a project emergency, the programmers wrote more code in the first week of May than planned. The actual amount of code written in the first week of May was 7,200 lines, without overtime. As a result, the bonus caused the average programmer's hourly rate to increase to $32.00 per hour during the first week in May.

Instructions

1. If the team generated 6,200 lines of code according to the original plan, what would have been the labor time variance?
2. What was the actual labor time variance as a result of generating 7,200 lines of code?
3. What was the labor rate variance as a result of the bonus?
4. Are there any performance-related issues that the labor time and rate variances fail to consider? Explain.
5. The manager is trying to determine if a better decision would have been to hire a temporary programmer to meet the higher programming demand in the first week of May, rather than paying out the bonus. If another employee was hired from the employment firm, what would have been the labor time variance in the first week?
6. Which decision is better, paying the bonus or hiring another programmer?

Problems Series B

OBJ. 2, 3

✔ c. Rate variance, $420 F

PR 23-1B Direct materials and direct labor variance analysis

Heart Dress Co. manufactures dresses in a small manufacturing facility. Manufacturing has 20 employees. Each employee presently provides 35 hours of productive labor per week. Information about a production week is as follows:

Standard wage per hr.	$10.60
Standard labor time per dress	15 min.
Standard number of yds. of fabric per dress	4.0 yds.
Standard price per yd. of fabric	$2.90
Actual price per yd. of fabric	$3.05
Actual yds. of fabric used during the week	14,200 yds.
Number of dresses produced during the week	3,500
Actual wage per hr.	$10.00
Actual hrs. per week	700 hrs.

Instructions

Determine (a) the standard cost per dress for direct materials and direct labor; (b) the price variance, quantity variance, and total direct materials cost variance; and (c) the rate variance, time variance, and total direct labor cost variance.

OBJ. 1, 2, 3

✔ 1. a. Direct materials price variance, $11,645 U

PR 23-2B Flexible budgeting and variance analysis

Yukon Coat Company makes women's and men's coats. Both products require filler and lining material. The following planning information has been made available:

	Standard Amount per Unit		
	Women's Coats	**Men's Coats**	**Standard Price per Unit**
Filler	2.2 lbs.	3.5 lbs.	$1.00
Liner	5.5 yds.	8.0 yds.	6.50
Standard labor time	0.30 hr.	0.40 hr.	

	Women's Coats	Men's Coats
Planned production	3,000 units	5,000 units
Standard labor rate	$12.50 per hr.	$11.00 per hr.

Yukon Coat does not expect there to be any beginning or ending inventories of filler and lining material. At the end of the budget year, Yukon Coat experienced the following actual results:

	Women's Coats	Men's Coats
Actual production	3,200	4,900
	Actual Price per Unit	**Actual Quantity Purchased and Used**
Filler	$0.90 per lb.	24,800
Liner	6.75 per yd.	56,500
	Actual Labor Rate	**Actual Labor Hours Used**
Women's Coats	$12.70 per hr.	1,000
Men's Coats	11.20 per hr.	1,900

The expected beginning inventory and desired ending inventory were realized.

Instructions

1. Prepare the following variance analyses for each coat and total, based on the actual results and production levels at the end of the budget year:
   a. Direct materials price, quantity, and total variance.
   b. Direct labor rate, time, and total variance.
2. Why are the standard amounts in part (1) based on the actual production at the end of the year instead of the planned production at the beginning of the year?

OBJ. 3, 4

✔ a. Direct materials price variance, $12,390 U

PR 23-3B Direct materials, direct labor, and factory overhead cost variance analysis

Roadmaster Tire Co. manufactures automobile tires. Standard costs and actual costs for direct materials, direct labor, and factory overhead incurred for the manufacture of 5,500 tires were as follows:

	Standard Costs	Actual Costs
Direct materials	82,000 lbs. at $5.10	82,600 lbs. at $5.25
Direct labor	1,650 hrs. at $17.50	1,620 hrs. at $17.40
Factory overhead	Rates per direct labor hr., based on 100% of normal capacity of 1,500 direct labor hrs.:	
	Variable cost, $3.10	$5,000 variable cost
	Fixed cost, $4.90	$7,350 fixed cost

Each tire requires 0.30 hour of direct labor.

Instructions

Determine (a) the price variance, quantity variance, and total direct materials cost variance; (b) the rate variance, time variance, and total direct labor cost variance; and (c) variable factory overhead controllable variance, the fixed factory overhead volume variance, and total factory overhead cost variance.

OBJ. 4

✓ Controllable variance, $950 F

PR 23-4B Standard factory overhead variance report

Star Medical, Inc., a manufacturer of disposable medical supplies, prepared the following factory overhead cost budget for the Assembly Department for October 2012. The company expected to operate the department at 100% of normal capacity of 24,000 hours.

Variable costs:		
Indirect factory wages	$180,000	
Power and light	124,800	
Indirect materials	33,600	
Total variable cost		$338,400
Fixed costs:		
Supervisory salaries	$ 72,000	
Depreciation of plant and equipment	51,500	
Insurance and property taxes	24,100	
Total fixed cost		147,600
Total factory overhead cost		$486,000

During October, the department operated at 22,500 hours, and the factory overhead costs incurred were indirect factory wages, $167,550; power and light, $116,800; indirect materials, $31,950; supervisory salaries, $72,000; depreciation of plant and equipment, $51,500; and insurance and property taxes, $24,100.

Instructions

Prepare a factory overhead cost variance report for October. To be useful for cost control, the budgeted amounts should be based on 22,500 hours.

OBJ. 3, 6

✓ 2. $210 F

PR 23-5B Standards for nonmanufacturing expenses

The Radiology Department provides imaging services for Brentmore Medical Center. One important activity in the Radiology Department is transcribing digitally recorded analyses of images into a written report. The manager of the Radiology Department determined that the average transcriptionist could type 750 lines of a report in an hour. The plan for the first week in May called for 58,500 typed lines to be written. The Radiology Department has two transcriptionists. Each transcriptionist is hired from an employment firm that requires temporary employees to be hired for a minimum of a 40-hour week. Transcriptionists are paid $15.00 per hour. The manager offered a bonus if the department could type more lines for the week, without overtime. Due to high service demands, the transcriptionists typed more lines in the first week of May than planned. The actual amount of lines typed in the first week of May was 70,500 lines, without overtime. As a result, the bonus caused the average transcriptionist hourly rate to increase to $20.00 per hour during the first week in May.

Instructions

1. If the department typed 58,500 lines according to the original plan, what would have been the labor time variance?
2. What was the labor time variance as a result of typing 70,500 lines?
3. What was the labor rate variance as a result of the bonus?
4. The manager is trying to determine if a better decision would have been to hire a temporary transcriptionist to meet the higher typing demands in the first week of May, rather than paying out the bonus. If another employee was hired from the employment firm, what would have been the labor time variance in the first week?
5. Which decision is better, paying the bonus or hiring another transcriptionist?
6. Are there any performance-related issues that the labor time and rate variances fail to consider? Explain.

Comprehensive Problem 5

Natural Fragrance, Inc., began operations on January 1, 2012. The company produces a hand and body lotion in an eight-ounce bottle called *Eternal Beauty*. The lotion is sold wholesale in 12-bottle cases for $80 per case. There is a selling commission of $16 per case. The January direct materials, direct labor, and factory overhead costs are as follows:

DIRECT MATERIALS

	Cost Behavior	Units per Case	Cost per Unit	Direct Materials Cost per Case
Cream base	Variable	72 ozs.	$0.015	$ 1.08
Natural oils	Variable	24 ozs.	0.250	6.00
Bottle (8-oz.)	Variable	12 bottles	0.400	4.80
				$11.88

DIRECT LABOR

Department	Cost Behavior	Time per Case	Labor Rate per Hour	Direct Labor Cost per Case
Mixing	Variable	16.8 min.	$15.00	$4.20
Filling	Variable	4.2	12.00	0.84
		21.0 min.		$5.04

FACTORY OVERHEAD

	Cost Behavior	Total Cost
Utilities	Mixed	$ 230
Facility lease	Fixed	12,043
Equipment depreciation	Fixed	3,600
Supplies	Fixed	600
		$16,473

Part A—Break-Even Analysis

The management of Natural Fragrance, Inc., wishes to determine the number of cases required to break even per month. The utilities cost, which is part of factory overhead, is a mixed cost. The following information was gathered from the first six months of operation regarding this cost:

2012	Case Production	Utility Total Cost
January	300	$230
February	600	263
March	1,000	300
April	900	292
May	750	280
June	825	285

Instructions

1. Determine the fixed and variable portion of the utility cost using the high-low method.
2. Determine the contribution margin per case.
3. Determine the fixed costs per month, including the utility fixed cost from part (1).
4. Determine the break-even number of cases per month.

✔ 2. $46.98

Part B—August Budgets

During July of the current year, the management of Natural Fragrance, Inc., asked the controller to prepare August manufacturing and income statement budgets. Demand was expected to be 1,300 cases at $80 per case for August. Inventory planning information is provided as follows:

Finished Goods Inventory:

	Cases	Cost
Estimated finished goods inventory, August 1, 2012	200	$6,000
Desired finished goods inventory, August 31, 2012	100	3,000

Materials Inventory:

	Cream Base (ozs.)	Oils (ozs.)	Bottles (bottles)
Estimated materials inventory, August 1, 2012	200	240	500
Desired materials inventory, August 31, 2012	800	300	200

There was negligible work in process inventory assumed for either the beginning or end of the month; thus, none was assumed. In addition, there was no change in the cost per unit or estimated units per case operating data from January.

Instructions

✔ 6. Bottles purchased, $5,640

5. Prepare the August production budget.
6. Prepare the August direct materials purchases budget.
7. Prepare the August direct labor budget.
8. Prepare the August factory overhead budget.
9. Prepare the August budgeted income statement, including selling expenses.

Part C—August Variance Analysis

During September of the current year, the controller was asked to perform variance analyses for August. The January operating data provided the standard prices, rates, times, and quantities per case. There were 1,300 actual cases produced during August, which was 100 more cases than planned at the beginning of the month. Actual data for August were as follows:

	Actual Direct Materials Price per Unit	Actual Direct Materials Quantity per Case
Cream base	$0.014 per oz.	74 ozs.
Natural oils	$0.27 per oz.	26 ozs.
Bottle (8-oz.)	$0.35 per bottle	12.6 bottles

	Actual Direct Labor Rate	Actual Direct Labor Time per Case
Mixing	$15.20	16.20 min.
Filling	11.70	4.80 min.

Actual variable overhead	$162.00
Normal volume	1,350 cases

The prices of the materials were different than standard due to fluctuations in market prices. The standard quantity of materials used per case was an ideal standard. The Mixing Department used a higher grade labor classification during the month, thus causing the actual labor rate to exceed standard. The Filling Department used a lower grade labor classification during the month, thus causing the actual labor rate to be less than standard.

Instructions

10. Determine and interpret the direct materials price and quantity variances for the three materials.

✔ 11. Mixing time variance, –$195 F

✔ 12. $32 U

11. Determine and interpret the direct labor rate and time variances for the two departments.
12. Determine and interpret the factory overhead controllable variance.
13. Determine and interpret the factory overhead volume variance.
14. Why are the standard direct labor and direct materials costs in the calculations for parts (10) and (11) based on the actual 1,300-case production volume rather than the planned 1,200 cases of production used in the budgets for parts (6) and (7)?

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA 23-1 Direct materials variances

The May Company manufactures plastic toy cars. Each toy car requires 16 standard pounds of resin (plastic). Each pound of resin has a standard cost of $3.25 per pound. Actual production information is as follows:

Volume: 800 toy cars
Actual material price per pound: $3.15
Actual pounds of resin used to produce each car: 16.2
Actual total pounds of used: 12,960 (800 cars × 16.2 pounds)

a. Open the Excel file *SA23-1_2e*.

b. Determine the direct materials price variance, direct materials quantity variance, and the direct materials cost variance.

c. When you have completed the variances, perform a "save as," replacing the entire file name with the following:

SA23-1_2e[your first name initial]_[your last name]

SA 23-2 Direct labor variances

Each toy car produced by the May Company requires 0.35 standard direct labor hour. Each labor hour has a standard rate of $16 per hour. Actual production information is as follows:

Volume: 800 toy cars
Actual labor rate: $16.50 per hour
Actual direct labor hours per car: 0.32 hours
Actual total direct labor hours: 256 hours (800 cars × 0.32 hours)

a. Open the Excel file *SA23-2_2e*.

b. Determine the direct labor rate variance, direct labor time variance, and the direct labor cost variance.

c. When you have completed the variances, perform a "save as," replacing the entire file name with the following:

SA23-2_2e[your first name initial]_[your last name]

SA 23-3 Factory overhead variances

The May Company produced 800 toy cars that required 0.32 standard hour per unit to manufacture. The standard variable factory overhead rate per unit is $15.00 per hour. The actual variable factory overhead was $3,775. The normal productive capacity is 300 direct labor hours, and the standard fixed factory overhead rate is $17.00 per direct labor hour. Thus, the budgeted amount of fixed factory overhead is $5,100 (300 direct labor hours × $17.00 per hour).

a. Open the Excel file *SA23-3_2e*.

b. Determine the variable factory overhead controllable variance and the fixed factory overhead volume variance.

c. When you have completed the variances, perform a "save as," replacing the entire file name with the following:

SA23-3_2e[your first name initial]_[your last name]

---

excel success

SA 23-4 Direct materials, direct labor, and factory overhead variances

The Morgan Company produces bed sheets by cutting and sewing fabric. The following production information relates to a recent period:

Inputs	**Standard**	**Actual**
Direct Materials		
Square yrds.	34,500	35,200
Price per sq. yrd.	$ 6.50	$ 6.45
Direct Labor		
Hours	6,300	6,450
Rate per hour	$ 11.50	$ 11.62
Factory Overhead		
Variable cost		$47,900
Fixed cost		42,000
Variable factory overhead rate, per hour	$ 8.20	
Fixed factory overhead rate, per hour	$ 6.00	
Normal productive capacity (hours)	7,000	

a. Open the Excel file *SA23-4_2e.*

b. Prepare a spreadsheet to calculate the direct materials, direct labor, and factory overhead variances.

c. When you have completed the variances, perform a "save as," replacing the entire files name with the following:

SA23-4_2e[your first name initial]_[your last name]

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CHAPTER

24

Performance Evaluation for Decentralized Operations

E.W. Scripps

Have you ever wondered why large retail stores like **Macy's, JC Penny**, and **Sears** are divided into departments? Organizing into departments allows retailers to provide products and expertise in specialized areas, while offering a wide range of products. Departments also allow companies to assign responsibility for financial performance. This information can be used to make product decisions, evaluate operations, and guide company strategy. Strong departmental performance might be attributable to a good department manager, while weak departmental performance may be the result of a product mix that has low customer appeal. By tracking departmental performance, companies can identify and reward excellent performance and take corrective action in departments that are performing poorly.

Like retailers, most businesses organize into operational units, such as divisions and departments. For example, **E.W. Scripps Company** operates a variety of media companies and is organized into three business segments: Newspapers, TV Stations, and United Media. The Newspapers segment includes the Scripps Media Center and a variety of local newspapers such as the *Ventura County Star* and the *Knoxville News*. The TV Stations segment operates network-affiliated television stations. United Media licenses media brands and creative content, such as the comic strips *Peanuts* and *Dilbert*, and distributes many of these brands internationally.

Managers at E.W. Scripps are responsible for running their business segment. Each segment is evaluated on segment profit, which excludes certain expense items from the calculation of profit that are not within the control of the business segment. The company uses segment profit to determine how to allocate resources between business segments and to plan and control the company's operations.

In this chapter, the role of accounting in assisting managers in planning and controlling organizational units, such as departments, divisions, and stores, is described and illustrated.

Learning Objectives

	After studying this chapter, you should be able to:	Example Exercises	Page
OBJ. 1	Describe the advantages and disadvantages of decentralized operations.		
	Centralized and Decentralized Operations		
	Advantages of Decentralization		
	Disadvantages of Decentralization		
	Responsibility Accounting		
OBJ. 2	Prepare a responsibility accounting report for a cost center.		
	Responsibility Accounting for Cost Centers	EE 24-1	1117
OBJ. 3	Prepare responsibility accounting reports for a profit center.		
	Responsibility Accounting for Profit Centers		
	Service Department Charges	EE 24-2	1121
	Profit Center Reporting	EE 24-3	1121
OBJ. 4	Compute and interpret the rate of return on investment, the residual income, and the balanced scorecard for an investment center.		
	Responsibility Accounting for Investment Centers		
	Rate of Return on Investment	EE 24-4	1125
	Residual Income	EE 24-5	1127
	The Balanced Scorecard		
OBJ. 5	Describe and illustrate how the market price, negotiated price, and cost price approaches to transfer pricing may be used by decentralized segments of a business.		
	Transfer Pricing		
	Market Price Approach		
	Negotiated Price Approach	EE 24-6	1132
	Cost Price Approach		

At a Glance 24 Page 1133

OBJ. 1 Describe the advantages and disadvantages of decentralized operations.

Centralized and Decentralized Operations

In a *centralized* company, all major planning and operating decisions are made by top management. For example, a one-person, owner-manager-operated company is centralized because all plans and decisions are made by one person. In a small owner-manager-operated business, centralization may be desirable. This is because the owner-manager's close supervision ensures that the business will be operated in the way the owner-manager wishes.

In a *decentralized* company, managers of separate divisions or units are delegated operating responsibility. The division (unit) managers are responsible for planning and controlling the operations of their divisions. Divisions are often structured around products, customers, or regions.

The proper amount of decentralization for a company depends on the company's unique circumstances. For example, in some companies, division managers have authority over all operations, including fixed asset purchases. In other companies, division managers have authority over profits but not fixed asset purchases.

Advantages of Decentralization

For large companies, it is difficult for top management to do the following:

1. Maintain daily contact with all operations
2. Maintain operating expertise in all product lines and services

In such cases, delegating authority to managers closest to the operations usually results in better decisions. These managers often anticipate and react to operating data more quickly than could top management. These managers also can focus their attention on becoming "experts" in their area of operation.

Decentralized operations provide excellent training for managers. Delegating responsibility allows managers to develop managerial experience early in their careers. This helps a company retain managers, some of whom may be later promoted to top management positions.

Managers of decentralized operations often work closely with customers. As a result, they tend to identify with customers and, thus, are often more creative in suggesting operating and product improvements. This helps create good customer relations.

Disadvantages of Decentralization

A primary disadvantage of decentralized operations is that decisions made by one manager may negatively affect the profits of the company. For example, managers of divisions whose products compete with one another might start a price war that decreases the profits of both divisions and, thus, the overall company.

Another disadvantage of decentralized operations is that they may result in duplicate assets and expenses. For example, each manager of a product line might have a separate sales force and office support staff.

The advantages and disadvantages of decentralization are summarized in Exhibit 1.

EXHIBIT 1

Advantages and Disadvantages of Decentralized Operations

Advantages of Decentralization
Allows managers closest to the operations to make decisions
Provides excellent training for managers
Allows managers to become experts in their area of operation
Helps retain managers
Improves creativity and customer relations

Disadvantages of Decentralization
Decisions made by managers may negatively affect the profits of the company
Duplicates assets and expenses

Business Connection

CENTRALIZED VS. DECENTRALIZED RESEARCH AND DEVELOPMENT

Companies use research and development (R&D) to search for ideas, processes, and technologies that result in new products. For many industries, research and development is the key to future growth and continued success. While most companies conduct research at both the corporate (centralized) and business segment (decentralized) levels, research and development strategies often differ depending on company strategy and product mix. Companies with a wide range of products that serve global markets tend to do most of their research and development on a centralized basis. In contrast, companies with a limited number of technologies that focus on local markets tend to conduct research and development on a decentralized basis.

Source: "Centralized versus Decentralized R&D: Benefits and Drawbacks," *Research Technology Management*, November 1, 2001.

Responsibility Accounting

In a decentralized business, accounting assists managers in evaluating and controlling their areas of responsibility, called *responsibility centers*. **Responsibility accounting** is the process of measuring and reporting operating data by responsibility center.

Three types of responsibility centers are:

1. Cost centers, which have responsibility over costs
2. Profit centers, which have responsibility over revenues and costs
3. Investment centers, which have responsibility over revenues, costs, and investment in assets

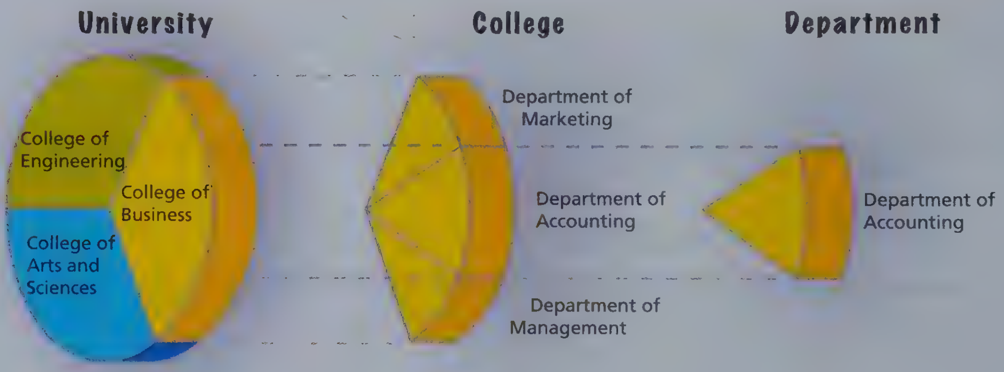
OBJ. 2 Prepare a responsibility accounting report for a cost center.

Responsibility Accounting for Cost Centers

A **cost center** manager has responsibility for controlling costs. For example, the supervisor of the Power Department has responsibility for the costs of providing power. A cost center manager does not make decisions concerning sales or the amount of fixed assets invested in the center.

Cost centers may vary in size from a small department to an entire manufacturing plant. In addition, cost centers may exist within other cost centers. For example, an entire university or college could be viewed as a cost center, and each college and department within the university could also be a cost center, as shown in Exhibit 2.

EXHIBIT 2 Cost Centers in a University



Responsibility accounting for cost centers focuses on controlling and reporting of costs. Budget performance reports that report budgeted and actual costs are normally prepared for each cost center.

Exhibit 3 illustrates budget performance reports for the following cost centers:

1. Vice President, Production
2. Manager, Plant A
3. Supervisor, Department 1—Plant A

Exhibit 3 shows how cost centers are often linked together within a company. For example, the budget performance report for Department 1—Plant A supports the report for Plant A, which supports the report for the vice president of production.

The reports in Exhibit 3 show the budgeted costs and actual costs along with the differences. Each difference is classified as either *over* budget or *under* budget. Such reports allow cost center managers to focus on areas of significant differences.

For example, the supervisor for Department 1 of Plant A can focus on why the materials cost was over budget. The supervisor might discover that excess materials were scrapped. This could be due to such factors as machine malfunctions, improperly trained employees, or low-quality materials.

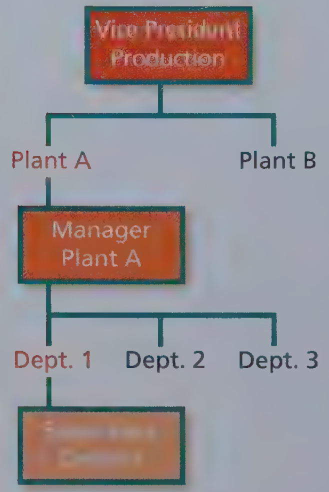
As shown in Exhibit 3, responsibility accounting reports are usually more summarized for higher levels of management. For example, the budget performance report for the manager of Plant A shows only administration and departmental data. This report enables the plant manager to identify the departments responsible for major differences. Likewise, the report for the vice president of production summarizes the cost data for each plant.

EXHIBIT 3

Responsibility Accounting Reports for Cost Centers

Budget Performance Report
Vice President, Production
For the Month Ended October 31, 2012

	Budget	Actual	Over Budget	Under Budget
Administration	$ 19,500	$ 19,700	$ 200	
Plant A	467,475	470,330	2,855	
Plant B	395,225	394,300		$925
	$882,200	$884,330	$3,055	$925



Budget Performance Report
Manager, Plant A
For the Month Ended October 31, 2012

	Budget	Actual	Over Budget	Under Budget
Administration	$ 17,500	$ 17,350		$150
Department 1	109,725	111,280	$1,555	
Department 2	190,500	192,600	2,100	
Department 3	149,750	149,100		650
	$467,475	$470,330	$3,655	$800

Budget Performance Report
Supervisor, Department 1 — Plant A
For the Month Ended October 31, 2012

	Budget	Actual	Over Budget	Under Budget
Factory wages	$ 58,100	$ 58,000		$100
Materials	32,500	34,225	$1,725	
Supervisory salaries	6,400	6,400		
Power and light	5,750	5,690		60
Depreciation of plant and equipment	4,000	4,000		
Maintenance	2,000	1,990		10
Insurance and property taxes	975	975		
	$109,725	$111,280	$1,725	$170

Example Exercise 24-1 Budgetary Performance for Cost Center

OBJ. 2

Nuclear Power Company's costs were over budget by $24,000. The company is divided into North and South regions. The North Region's costs were under budget by $2,000. Determine the amount that the South Region's costs were over or under budget.

Follow My Example 24-1

$26,000 over budget ($24,000 + $2,000)

Practice Exercises: **PE 24-1A, PE 24-1B**

OBJ. 3 Prepare responsibility accounting reports for a profit center.

Responsibility Accounting for Profit Centers

A **profit center** manager has the responsibility and authority for making decisions that affect revenues and costs and, thus, profits. Profit centers may be divisions, departments, or products.

The manager of a profit center does not make decisions concerning the fixed assets invested in the center. However, profit centers are an excellent training assignment for new managers.

Responsibility accounting for profit centers focuses on reporting revenues, expenses, and income from operations. Thus, responsibility accounting reports for profit centers take the form of income statements.

The profit center income statement should include only revenues and expenses that are controlled by the manager. **Controllable revenues** are revenues earned by the profit center. **Controllable expenses** are costs that can be influenced (controlled) by the decisions of profit center managers.

Service Department Charges

The controllable expenses of profit centers include *direct operating expenses* such as sales salaries and utility expenses. In addition, a profit center may incur expenses provided by internal centralized *service departments*. Examples of such service departments include the following:

1. Research and Development
2. Legal
3. Telecommunications
4. Information and Computer Systems
5. Facilities Management
6. Purchasing
7. Publications and Graphics
8. Payroll Accounting
9. Transportation
10. Personnel Administration

Service department charges are *indirect* expenses to a profit center. They are similar to the expenses that would be incurred if the profit center purchased the services from outside the company. A profit center manager has control over service department expenses if the manager is free to choose how much service is used. In such cases, **service department charges** are allocated to profit centers based on the usage of the service by each profit center.

To illustrate, Nova Entertainment Group (NEG), a diversified entertainment company, is used. NEG has the following two operating divisions organized as profit centers:

1. Theme Park Division
2. Movie Production Division

Employees of IBM speak of "green money" and "blue money." Green money comes from customers. Blue money comes from providing services to other IBM departments via service department charges. IBM employees note that blue money is easier to earn than green money; yet from the stockholders' perspective, green money is the only money that counts.

The revenues and direct operating expenses for the two divisions are shown below. The operating expenses consist of direct expenses, such as the wages and salaries of a division's employees.

	Theme Park Division	**Movie Production Division**
Revenues	$6,000,000	$2,500,000
Operating expenses	2,495,000	405,000

NEG's service departments and the expenses they incurred for the year ended December 31, 2012, are as follows:

Purchasing	$400,000
Payroll Accounting	255,000
Legal	250,000
Total	$905,000

An activity base for each service department is used to charge service department expenses to the Theme Park and Movie Production divisions. The activity base for each service department is a measure of the services performed. For NEG, the service department activity bases are as follows:

Department	Activity Base
Purchasing	Number of purchase requisitions
Payroll Accounting	Number of payroll checks
Legal	Number of billed hours

The use of services by the Theme Park and Movie Production divisions is as follows:

	Service Usage		
Division	**Purchasing**	**Payroll Accounting**	**Legal**
Theme Park	25,000 purchase requisitions	12,000 payroll checks	100 billed hrs.
Movie Production	15,000	3,000	900
Total	40,000 purchase requisitions	15,000 payroll checks	1,000 billed hrs.

The rates at which services are charged to each division are called *service department charge rates*. These rates are computed as follows:

$$\text{Service Department Charge Rate} = \frac{\text{Service Department Expense}}{\text{Total Service Department Usage}}$$

NEG's service department charge rates are computed as follows:

$$\text{Purchasing Charge Rate} = \frac{\$400{,}000}{40{,}000 \text{ purchase requisitions}} = \$10 \text{ per purchase requisition}$$

$$\text{Payroll Charge Rate} = \frac{\$255{,}000}{15{,}000 \text{ payroll checks}} = \$17 \text{ per payroll check}$$

$$\text{Legal Charge Rate} = \frac{\$250{,}000}{1{,}000 \text{ billed hrs.}} = \$250 \text{ per hr.}$$

The services used by each division are multiplied by the service department charge rates to determine the service charges for each division, as shown below.

$$\text{Service Department Charge} = \text{Service Usage} \times \text{Service Department Charge Rate}$$

Exhibit 4 illustrates the service department charges and related computations for NEG's Theme Park and Movie Production divisions.

EXHIBIT 4

Service Department Charges to NEG Divisions

Nova Entertainment Group
Service Department Charges to NEG Divisions
For the Year Ended December 31, 2012

Service Department	Theme Park Division	Movie Production Division
Purchasing (Note A)	$250,000	$150,000
Payroll Accounting (Note B)	204,000	51,000
Legal (Note C)	25,000	225,000
Total service department charges	$479,000	$426,000

Note A:
25,000 purchase requisitions × $10 per purchase requisition = $250,000
15,000 purchase requisitions × $10 per purchase requisition = $150,000

Note B:
12,000 payroll checks × $17 per check = $204,000
3,000 payroll checks × $17 per check = $51,000

Note C:
100 hours × $250 per hour = $25,000
900 hours × $250 per hour = $225,000

The differences in the service department charges between the two divisions can be explained by the nature of their operations and, thus, usage of services. For example, the Theme Park Division employs many part-time employees who are paid weekly. As a result, the Theme Park Division requires 12,000 payroll checks and incurs a $204,000 payroll service department charge (12,000 × $17). In contrast, the Movie Production Division has more permanent employees who are paid monthly. Thus, the Movie Production Division requires only 3,000 payroll checks and incurs a payroll service department charge of $51,000 (3,000 × $17).

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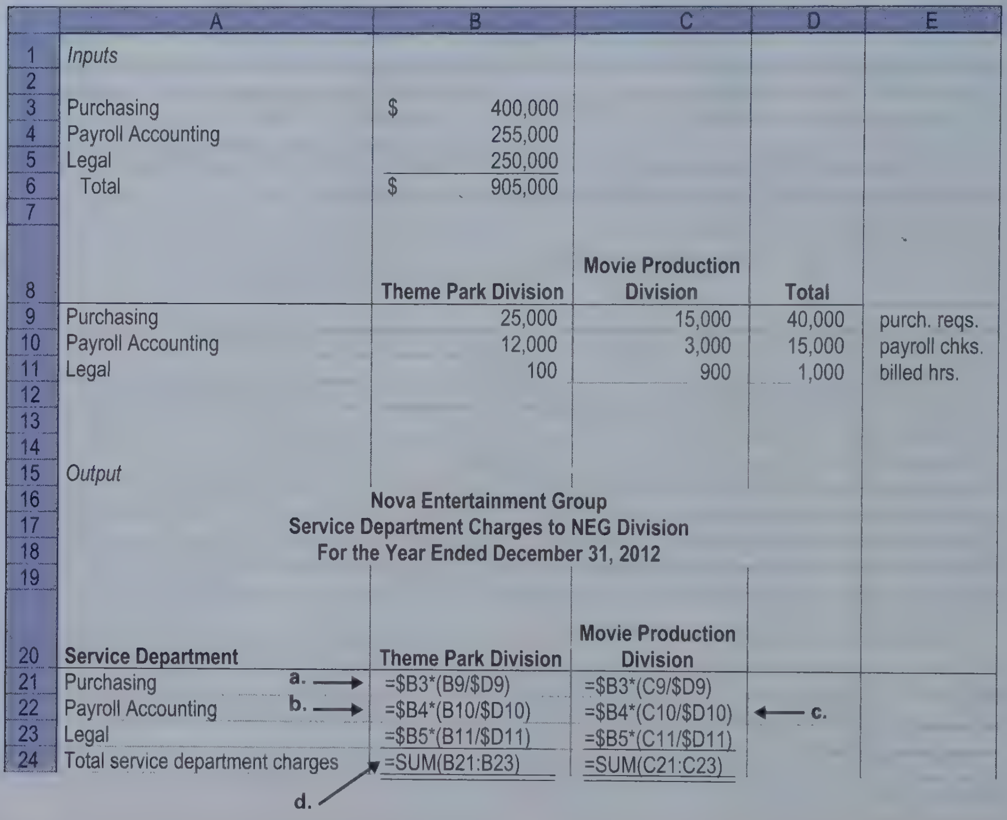
The service department charges can be determined using a spreadsheet as follows:



	A	B	C	D	E
1	*Inputs*				
2					
3	Purchasing	$ 400,000			
4	Payroll Accounting	255,000			
5	Legal	250,000			
6	Total	$ 905,000			
7					
8		Theme Park Division	Movie Production Division	Total	
9	Purchasing	25,000	15,000	40,000	purch. reqs.
10	Payroll Accounting	12,000	3,000	15,000	payroll chks.
11	Legal	100	900	1,000	billed hrs.
12					
13					
14					
15	*Output*				
16		Nova Entertainment Group			
17		Service Department Charges to NEG Division			
18		For the Year Ended December 31, 2012			
19					
20	Service Department	Theme Park Division	Movie Production Division		
21	Purchasing a. →	=$B3*(B9/$D9)	=$B3*(C9/$D9)		
22	Payroll Accounting b. →	=$B4*(B10/$D10)	=$B4*(C10/$D10)	← c.	
23	Legal	=$B5*(B11/$D11)	=$B5*(C11/$D11)		
24	Total service department charges	=SUM(B21:B23)	=SUM(C21:C23)		

The spreadsheet is divided into input and output sections. The inputs include the expense and activity base data for the service departments. The activity base information is transposed from the table shown in the text. A table is transposed when the columns and rows are reversed. This presentation facilitates copying formulas in the output table.

a. Enter in cell B21 the formula for the purchasing department charge to the Theme Park Division:

$$=\underbrace{\$B3*(B9/\$D9)}_{\text{The dollar sign (\$) makes the column references absolute (doesn't change when copied).}}$$

b. Copy the formula from B21 to cells B22:B23.

c. Then copy the cells B21:B23 to C21:C23. If you place the dollar signs as shown in the formula, you will see that the formula copied correctly to all the cells.

d. Enter in B24:C24 the =SUM function to total the columns.

TryIt Go to the hands-on ***Excel Tutor*** for this example!

TryIt This Excel Success example uses an Excel function referred to as cell referencing. Go to the ***Excel Tutor*** titled **Absolute & Relative Cell References** for additional help on this useful Excel function!

Example Exercise 24-2 Service Department Charges

OBJ. 3

The centralized legal department of Johnson Company has expenses of $60,000. The department has provided a total of 2,000 hours of service for the period. The East Division has used 500 hours of legal service during the period, and the West Division has used 1,500 hours. How much should each division be charged for legal services?

Follow My Example 24-2

East Division Service Charge for Legal Department:
$15,000 = 500 billed hours × ($60,000/2,000 hours)

West Division Service Charge for Legal Department:
$45,000 = 1,500 billed hours × ($60,000/2,000 hours)

Practice Exercises: **PE 24-2A, PE 24-2B**

Profit Center Reporting

The divisional income statements for NEG are shown in Exhibit 5.

EXHIBIT 5

Divisional Income Statements—NEG

Nova Entertainment Group
Divisional Income Statements
For the Year Ended December 31, 2012

	Theme Park Division	Movie Production Division
Revenues*	$6,000,000	$2,500,000
Operating expenses	2,495,000	405,000
Income from operations before service department charges	$3,505,000	$2,095,000
Less service department charges:		
Purchasing	$ 250,000	$ 150,000
Payroll Accounting	204,000	51,000
Legal	25,000	225,000
Total service department charges	$ 479,000	$ 426,000
Income from operations	$3,026,000	$1,669,000

*For a profit center that sells products, the income statement would show: Net sales – Cost of goods sold = Gross profit. The operating expenses would be deducted from the gross profit to get the income from operations before service department charges.

In evaluating the profit center manager, the income from operations should be compared over time to a budget. However, it should not be compared across profit centers, since the profit centers are usually different in terms of size, products, and customers.

Example Exercise 24-3 Income from Operations for Profit Center

OBJ. 3

Using the data for Johnson Company from Example Exercise 24-2 along with the data given below, determine the divisional income from operations for the East and West divisions.

	East Division	West Division
Sales	$300,000	$800,000
Cost of goods sold	165,000	420,000
Selling expenses	85,000	185,000

(continued)

Follow My Example 24-3

	East Division	West Division
Net sales	$300,000	$800,000
Cost of goods sold	165,000	420,000
Gross profit	$135,000	$380,000
Selling expenses	85,000	185,000
Income from operations before service department charges	$ 50,000	$195,000
Service department charges	15,000	45,000
Income from operations	$ 35,000	$150,000

Practice Exercises: **PE 24-3A, PE 24-3B**

OBJ 4 Compute and interpret the rate of return on investment, the residual income, and the balanced scorecard for an investment center.

Responsibility Accounting for Investment Centers

An **investment center** manager has the responsibility and the authority to make decisions that affect not only costs and revenues but also the assets invested in the center. Investment centers are often used in diversified companies organized by divisions. In such cases, the divisional manager has authority similar to that of a chief operating officer or president of a company.

Since investment center managers have responsibility for revenues and expenses, *income from operations* is part of investment center reporting. In addition, because the manager has responsibility for the assets invested in the center, the following two additional measures of performance are used:

1. Rate of return on investment
2. Residual income

To illustrate, DataLink Inc., a cellular phone company with three regional divisions, is used. Condensed divisional income statements for the Northern, Central, and Southern divisions of DataLink are shown in Exhibit 6.

EXHIBIT 6

Divisional Income Statements—DataLink Inc.

DataLink Inc.
Divisional Income Statements
For the Year Ended December 31, 2012

	Northern Division	Central Division	Southern Division
Revenues	$560,000	$672,000	$750,000
Operating expenses	336,000	470,400	562,500
Income from operations before service department charges	$224,000	$201,600	$187,500
Service department charges	154,000	117,600	112,500
Income from operations	$ 70,000	$ 84,000	$ 75,000

Using only income from operations, the Central Division is the most profitable division. However, income from operations does not reflect the amount of assets invested in each center. For example, the Central Division could have twice as many assets as the Northern Division. For this reason, performance measures that consider the amount of invested assets, such as the rate of return on investment and residual income, are used.

Rate of Return on Investment

Since investment center managers control the amount of assets invested in their centers, they should be evaluated based on the use of these assets. One measure that considers the amount of assets invested is the **rate of return on investment (ROI)** or *rate of return on assets*. It is computed as follows:

$$\text{Rate of Return on Investment (ROI)} = \frac{\text{Income from Operations}}{\text{Invested Assets}}$$

The rate of return on investment is useful because the three factors subject to control by divisional managers (revenues, expenses, and invested assets) are considered. The higher the rate of return on investment, the better the division is using its assets to generate income. In effect, the rate of return on investment measures the income (return) on each dollar invested. As a result, the rate of return on investment can be used as a common basis for comparing divisions with each other.

To illustrate, the invested assets of DataLink's three divisions are as follows:

	Invested Assets
Northern Division	$350,000
Central Division	700,000
Southern Division	500,000

Using the income from operations for each division shown in Exhibit 6, the rate of return on investment for each division is computed below.

Northern Division:

$$\text{Rate of Return on Investment} = \frac{\text{Income from Operations}}{\text{Invested Assets}} = \frac{\$70{,}000}{\$350{,}000} = 20\%$$

Central Division:

$$\text{Rate of Return on Investment} = \frac{\text{Income from Operations}}{\text{Invested Assets}} = \frac{\$84{,}000}{\$700{,}000} = 12\%$$

Southern Division:

$$\text{Rate of Return on Investment} = \frac{\text{Income from Operations}}{\text{Invested Assets}} = \frac{\$75{,}000}{\$500{,}000} = 15\%$$

Although the Central Division generated the largest income from operations, its rate of return on investment (12%) is the lowest. Hence, relative to the assets invested, the Central Division is the least profitable division. In comparison, the rate of return on investment of the Northern Division is 20%, and the Southern Division is 15%.

To analyze differences in the rate of return on investment across divisions, the **DuPont formula** for the rate of return on investment is often used.[1] The DuPont formula views the rate of return on investment as the product of the following two factors:

1. **Profit margin**, which is the ratio of income from operations to sales.
2. **Investment turnover**, which is the ratio of sales to invested assets.

Using the DuPont formula, the rate of return on investment is expressed as follows:

$$\text{Rate of Return on Investment} = \text{Profit Margin} \times \text{Investment Turnover}$$

$$\text{Rate of Return on Investment} = \frac{\text{Income from Operations}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Invested Assets}}$$

---

[1] The DuPont formula was created by a financial executive of E. I. du Pont de Nemours and Company in 1919.

The DuPont formula is useful in evaluating divisions. This is because the profit margin and the investment turnover reflect the following underlying operating relationships of each division:

1. Profit margin indicates *operating profitability* by computing the rate of profit earned on each sales dollar.
2. Investment turnover indicates *operating efficiency* by computing the number of sales dollars generated by each dollar of invested assets.

If a division's profit margin increases, and all other factors remain the same, the division's rate of return on investment will increase. For example, a division might add more profitable products to its sales mix and, thus, increase its operating profit, profit margin, and rate of return on investment.

If a division's investment turnover increases, and all other factors remain the same, the division's rate of return on investment will increase. For example, a division might attempt to increase sales through special sales promotions and thus increase operating efficiency, investment turnover, and rate of return on investment.

The rate of return on investment, profit margin, and investment turnover operate in relationship to one another. Specifically, more income can be earned by either increasing the investment turnover, by increasing the profit margin, or both.

Using the DuPont formula yields the same rate of return on investment for each of DataLink's divisions, as shown below.

$$\text{Rate of Return on Investment} = \frac{\text{Income from Operations}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Invested Assets}}$$

Northern Division:

$$\text{Rate of Return on Investment} = \frac{\$70{,}000}{\$560{,}000} \times \frac{\$560{,}000}{\$350{,}000} = 12.5\% \times 1.6 = 20\%$$

Central Division:

$$\text{Rate of Return on Investment} = \frac{\$84{,}000}{\$672{,}000} \times \frac{\$672{,}000}{\$700{,}000} = 12.5\% \times 0.96 = 12\%$$

Southern Division:

$$\text{Rate of Return on Investment} = \frac{\$75{,}000}{\$750{,}000} \times \frac{\$750{,}000}{\$500{,}000} = 10\% \times 1.5 = 15\%$$

The Northern and Central divisions have the same profit margins of 12.5%. However, the Northern Division's investment turnover of 1.6 is larger than that of the Central Division's turnover of 0.96. By using its invested assets more efficiently, the Northern Division's rate of return on investment of 20% is 8 percentage points higher than the Central Division's rate of return of 12%.

The Southern Division's profit margin of 10% and investment turnover of 1.5 are lower than those of the Northern Division. The product of these factors results in a return on investment of 15% for the Southern Division, compared to 20% for the Northern Division.

Even though the Southern Division's profit margin is lower than the Central Division's, its higher turnover of 1.5 results in a rate of return of 15%, which is greater than the Central Division's rate of return of 12%.

To increase the rate of return on investment, the profit margin and investment turnover for a division may be analyzed. For example, assume that the Northern Division is in a highly competitive industry in which the profit margin cannot be easily increased. As a result, the division manager might focus on increasing the investment turnover.

To illustrate, assume that the revenues of the Northern Division could be increased by $56,000 through increasing operating expenses, such as advertising, to $385,000. The Northern Division's income from operations will increase from $70,000 to $77,000, as shown below.

Revenues ($560,000 + $56,000)	$616,000
Operating expenses	385,000
Income from operations before service department charges	$231,000
Service department charges	154,000
Income from operations	$ 77,000

The rate of return on investment for the Northern Division, using the DuPont formula, is recomputed as follows:

$$\text{Rate of Return on Investment} = \frac{\text{Income from Operations}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Invested Assets}}$$

$$\text{Rate of Return on Investment} = \frac{\$77{,}000}{\$616{,}000} \times \frac{\$616{,}000}{\$350{,}000} = 12.5\% \times 1.76 = 22\%$$

Although the Northern Division's profit margin remains the same (12.5%), the investment turnover has increased from 1.6 to 1.76, an increase of 10% (0.16 ÷ 1.6). The 10% increase in investment turnover increases the rate of return on investment by 10% (from 20% to 22%).

The rate of return on investment is also useful in deciding where to invest additional assets or expand operations. For example, DataLink should give priority to expanding operatons in the Northern Division because it earns the highest rate of return on investment. In other words, an investment in the Northern Division will return 20 cents (20%) on each dollar invested. In contrast, investments in the Central and Southern divisions will earn only 12 cents and 15 cents per dollar invested.

A disadvantage of the rate of return on investment as a performance measure is that it may lead divisional managers to reject new investments that could be profitable for the company as a whole. To illustrate, assume the following rates of return for the Northern Division of DataLink:

Current rate of return on investment	20%
Minimum acceptable rate of return on investment set by top management	10%
Expected rate of return on investment for new project	14%

If the manager of the Northern Division invests in the new project, the Northern Division's overall rate of return will decrease from 20% due to averaging. Thus, the division manager might decide to reject the project, even though the new project's expected rate of return of 14% exceeds DataLink's minimum acceptable rate of return of 10%.

Example Exercise 24-4 Profit Margin, Investment Turnover, and ROI

OBJ. 4

Campbell Company has income from operations of $35,000, invested assets of $140,000, and sales of $437,500. Use the DuPont formula to compute the rate of return on investment and show (a) the profit margin, (b) the investment turnover, and (c) the rate of return on investment.

Follow My Example 24-4

a. Profit Margin = $35,000/$437,500 = 8%
b. Investment Turnover = $437,500/$140,000 = 3.125
c. Rate of Return on Investment = 8% × 3.125 = 25%

Practice Exercises: **PE 24-4A, PE 24-4B**

BusinessConnection

BOOSTING ROI

Investment centers can use the rate of return on investment (ROI) to identify operational and strategic decisions that improve their financial performance. For example, a group of consultants worked with a golf ball manufacturer to find ways to improve their rate of return on investment. After examining the company's operations, the consultants found that if the golf ball manufacturer outsourced a portion of the production process, changed the company's product mix, and slightly altered its brand strategy, they could increase the company's rate of return on investment by 70% (from 33% to 57%).

Source: M. Cvar and J. Quelch, "Which Levers Boost ROI?" *Harvard Business Review*, June 1, 2007.

Residual Income

Residual income is useful in overcoming some of the disadvantages of the rate of return on investment. **Residual income** is the excess of income from operations over a minimum acceptable income from operations, as shown below.

Income from operations	$XXX
Less minimum acceptable income from operations as a percent of invested assets	XXX
Residual income	$XXX

The minimum acceptable income from operations is computed by multiplying the company minimum rate of return by the invested assets. The minimum rate is set by top management, based on such factors as the cost of financing.

To illustrate, assume that DataLink Inc. has established 10% as the minimum acceptable rate of return on divisional assets. The residual incomes for the three divisions are as follows:

	Northern Division	Central Division	Southern Division
Income from operations	$70,000	$84,000	$75,000
Less minimum acceptable income from operations as a percent of invested assets:			
$350,000 × 10%	35,000		
$700,000 × 10%		70,000	
$500,000 × 10%			50,000
Residual income	$35,000	$14,000	$25,000

The Northern Division has more residual income ($35,000) than the other divisions, even though it has the least amount of income from operations ($70,000). This is because the invested assets are less for the Northern Division than for the other divisions.

The major advantage of residual income as a performance measure is that it considers both the minimum acceptable rate of return, invested assets, and the income from operations for each division. In doing so, residual income encourages division managers to maximize income from operations in excess of the minimum. This provides an incentive to accept any project that is expected to have a rate of return in excess of the minimum.

To illustrate, assume the following rates of return for the Northern Division of DataLink:

Current rate of return on investment	20%
Minimum acceptable rate of return on investment set by top management	10%
Expected rate of return on investment for new project	14%

If the manager of the Northern Division is evaluated using only return on investment, the division manager might decide to reject the new project. This is because investing in the new project will decrease Northern's current rate of return of 20%. Thus, the manager might reject the new project even though its expected rate of return of 14% exceeds DataLink's minimum acceptable rate of return of 10%.

In contrast, if the manager of the Northern Division is evaluated using residual income, the new project would probably be accepted because it will increase the Northern Division's residual income. In this way, residual income supports both divisional and overall company objectives.

Example Exercise 24-5 Residual Income

OBJ. 4

The Wholesale Division of PeanutCo has income from operations of $87,000 and assets of $240,000. The minimum acceptable rate of return on assets is 12%. What is the residual income for the division?

Follow My Example 24-5

Income from operations	$87,000
Minimum acceptable income from operations as a percent of assets ($240,000 × 12%)	28,800
Residual income	$58,200

Practice Exercises: **PE 24-5A, PE 24-5B**

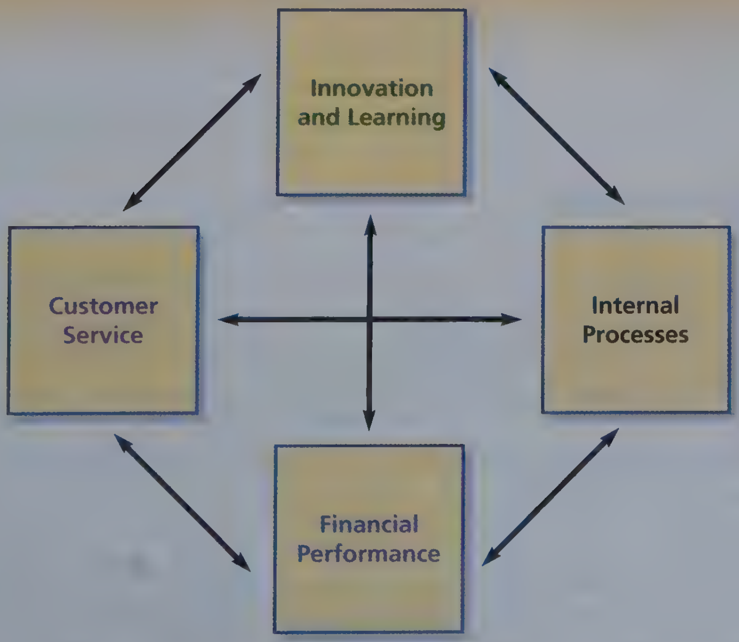
The Balanced Scorecard[2]

The **balanced scorecard** is a set of multiple performance measures for a company. In addition to financial performance, a balanced scorecard normally includes performance measures for customer service, innovation and learning, and internal processes, as shown in Exhibit 7.

Performance measures for learning and innovation often revolve around a company's research and development efforts. For example, the number of new products

EXHIBIT 7

The Balanced Scorecard



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[2] The balanced scorecard was developed by R. S. Kaplan and D. P. Norton and explained in *The Balanced Scorecard: Translating Strategy into Action* (Cambridge: Harvard Business School Press, 1996).

developed during a year and the time it takes to bring new products to the market are performance measures for innovation. Performance measures for learning could include the number of employee training sessions and the number of employees who are cross-trained in several skills.

Performance measures for customer service include the number of customer complaints and the number of repeat customers. Customer surveys can also be used to gather measures of customer satisfaction with the company as compared to competitors.

Performance measures for internal processes include the length of time it takes to manufacture a product. The amount of scrap and waste is a measure of the efficiency of a company's manufacturing processes. The number of customer returns is a performance measure of both the manufacturing and sales ordering processes.

All companies will use financial performance measures. Some financial performance measures have been discussed earlier in this chapter and include income from operations, rate of return on investment, and residual income.

The balanced scorecard attempts to identify the underlying nonfinancial drivers, or causes, of financial performance related to innovation and learning, customer service, and internal processes. In this way, the financial performance may be improved. For example, customer satisfaction is often measured by the number of repeat customers. By increasing the number of repeat customers, sales and income from operations can be increased.

Some common performance measures used in the balanced scorecard approach are shown below.

Hilton Hotels Corporation uses a balanced scorecard to measure employee satisfaction, customer loyalty, and financial performance.

Innovation and Learning

Number of new products
Number of new patents
Number of cross-trained employees
Number of training hours
Number of ethics violations
Employee turnover

Customer Service

Number of repeat customers
Customer brand recognition
Delivery time to customer
Customer satisfaction
Number of sales returns
Customer complaints

Internal Processes

Waste and scrap
Time to manufacture products
Number of defects
Number of rejected sales orders
Number of stockouts
Labor utilization

Financial

Sales
Income from operations
Return on investment
Profit margin and investment turnover
Residual income
Actual versus budgeted (standard) costs

Transfer Pricing

OBJ. 5 Describe and illustrate how the market price, negotiated price, and cost price approaches to transfer pricing may be used by decentralized segments of a business.

When divisions transfer products or render services to each other, a **transfer price** is used to charge for the products or services.[3] Since transfer prices will affect a division's financial performance, setting a transfer price is a sensitive matter for the managers of both the selling and buying divisions.

Three common approaches to setting transfer prices are as follows:

1. Market price approach
2. Negotiated price approach
3. Cost approach

Transfer prices may be used for cost, profit, or investment centers. The objective of setting a transfer price is to motivate managers to behave in a manner that will

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[3] The discussion in this chapter highlights the essential concepts of transfer pricing. In-depth discussion of transfer pricing can be found in advanced texts.

increase the overall company income. As will be illustrated, however, transfer prices may be misused in such a way that overall company income suffers.

Transfer prices can be set as low as the variable cost per unit or as high as the market price. Often, transfer prices are negotiated at some point between variable cost per unit and market price. Exhibit 8 shows the possible range of transfer prices.

EXHIBIT 8

Commonly Used Transfer Prices

To illustrate, Wilson Company, a packaged snack food company with no service departments, is used. Wilson Company has two operating divisions (Eastern and Western) that are organized as investment centers. Condensed income statements for Wilson Company, assuming no transfers between divisions, are shown in Exhibit 9.

EXHIBIT 9

Income Statements—No Transfers Between Divisions

Wilson Company
Income Statements
For the Year Ended December 31, 2012

	Eastern Division	Western Division	Total Company
Sales:			
50,000 units × $20 per unit	$1,000,000		$1,000,000
20,000 units × $40 per unit		$800,000	800,000
			$1,800,000
Expenses:			
Variable:			
50,000 units × $10 per unit	$ 500,000		$ 500,000
20,000 units × $30* per unit		$600,000	600,000
Fixed	300,000	100,000	400,000
Total expenses	$ 800,000	$700,000	$1,500,000
Income from operations	$ 200,000	$100,000	$ 300,000

*$20 of the $30 per unit represents materials costs, and the remaining $10 per unit represents other variable conversion expenses incurred within the Western Division.

Market Price Approach

Using the **market price approach**, the transfer price is the price at which the product or service transferred could be sold to outside buyers. If an outside market exists for the product or service transferred, the current market price may be a proper transfer price.

Transfer Price = Market Price

To illustrate, assume that materials used by Wilson Company in producing snack food in the Western Division are currently purchased from an outside supplier at $20 per unit. The same materials are produced by the Eastern Division. The Eastern Division is operating at full capacity of 50,000 units and can sell all it produces to either the Western Division or to outside buyers.

A transfer price of $20 per unit (the market price) has no effect on the Eastern Division's income or total company income. The Eastern Division will earn revenues of $20 per unit on all its production and sales, regardless of who buys its product.

Likewise, the Western Division will pay $20 per unit for materials (the market price). Thus, the use of the market price as the transfer price has no effect on the Eastern Division's income or total company income.

In this situation, the use of the market price as the transfer price is proper. The condensed divisional income statements for Wilson Company would be the same as shown in Exhibit 9.

Negotiated Price Approach

If unused or excess capacity exists in the supplying division (the Eastern Division), and the transfer price is equal to the market price, total company profit may not be maximized. This is because the manager of the Western Division will be indifferent toward purchasing materials from the Eastern Division or from outside suppliers. That is, in both cases the Western Division manager pays $20 per unit (the market price). As a result, the Western Division may purchase the materials from outside suppliers.

If, however, the Western Division purchases the materials from the Eastern Division, the difference between the market price of $20 and the variable costs of the Eastern Division of $10 per unit (from Exhibit 9) can cover fixed costs and contribute to overall company profits. Thus, the Western Division manager should be encouraged to purchase the materials from the Eastern Division.

The **negotiated price approach** allows the managers to agree (negotiate) among themselves on a transfer price. The only constraint is that the transfer price be less than the market price, but greater than the supplying division's variable costs per unit, as shown below.

Variable Costs per Unit < Transfer Price < Market Price

To illustrate, assume that instead of a capacity of 50,000 units, the Eastern Division's capacity is 70,000 units. In addition, assume that the Eastern Division can continue to sell only 50,000 units to outside buyers.

A transfer price less than $20 would encourage the manager of the Western Division to purchase from the Eastern Division. This is because the Western Division is currently purchasing its materials from outside suppliers at a cost of $20 per unit. Thus, its materials cost would decrease, and its income from operations would increase.

At the same time, a transfer price above the Eastern Division's variable costs per unit of $10 (from Exhibit 10) would encourage the manager of the Eastern Division to supply materials to the Western Division. In doing so, the Eastern Division's income from operations would also increase.

Exhibit 10 illustrates the divisional and company income statements, assuming that the Eastern and Western division managers agree to a transfer price of $15.

The Eastern Division increases its sales by $300,000 (20,000 units × $15 per unit) to $1,300,000. As a result, the Eastern Division's income from operations increases by $100,000 ($300,000 sales – $200,000 variable costs) to $300,000, as shown in Exhibit 10.

EXHIBIT 10

Income Statements—Negotiated Transfer Price

Wilson Company
Income Statements
For the Year Ended December 31, 2012

	Eastern Division	Western Division	Total Company
Sales:			
50,000 units × $20 per unit	$1,000,000		$1,000,000
20,000 units × $15 per unit	300,000		300,000
20,000 units × $40 per unit		$800,000	800,000
	$1,300,000	$800,000	$2,100,000
Expenses:			
Variable:			
70,000 units × $10 per unit	$ 700,000		$ 700,000
20,000 units × $25* per unit		$500,000	500,000
Fixed	300,000	100,000	400,000
Total expenses	$1,000,000	$600,000	$1,600,000
Income from operations	$ 300,000	$200,000	$ 500,000

*$10 of the $25 represents variable conversion expenses incurred solely within the Western Division, and $15 per unit represents the transfer price per unit from the Eastern Division.

The increase of $100,000 in the Eastern Division's income can also be computed as follows:

Increase in Eastern (Supplying) Division's Income from Operations = (Transfer Price – Variable Cost per Unit) × Units Transferred

Increase in Eastern (Supplying) Division's Income from Operations = ($15 – $10) × 20,000 units = $100,000

Western Division's materials cost decreases by $5 per unit ($20 – $15) for a total of $100,000 (20,000 units × $5 per unit). Thus, Western Division's income from operations increases by $100,000 to $200,000, as shown in Exhibit 10.

The increase of $100,000 in the Western Division's income can also be computed as follows:

Increase in Western (Purchasing) Division's Income from Operations = (Market Price – Transfer Price) × Units Transferred

Increase in Western (Purchasing) Division's Income from Operations = ($20 – $15) × 20,000 units = $100,000

Comparing Exhibits 9 and 10 shows that Wilson Company's income from operations increased by $200,000, as shown below.

	Income from Operations		
	No Units Transferred (Exhibit 9)	20,000 Units Transferred at $15 per Unit (Exhibit 10)	Increase (Decrease)
Eastern Division	$200,000	$300,000	$100,000
Western Division	100,000	200,000	100,000
Wilson Company	$300,000	$500,000	$200,000

In the preceding illustration, any negotiated transfer price between $10 and $20 is acceptable, as shown below.

Variable Costs per Unit < Transfer Price < Market Price
$10 < Transfer Price < $20

Any transfer price within this range will increase the overall income from operations for Wilson Company by $200,000. However, the increases in the Eastern and Western divisions' income from operations will vary depending on the transfer price.

To illustrate, a transfer price of $16 would increase the Eastern Division's income from operations by $120,000, as shown below.

Increase in Eastern (Supplying) Division's Income from Operations = (Transfer Price – Variable Cost per Unit) × Units Transferred

Increase in Eastern (Supplying) Division's Income from Operations = ($16 – $10) × 20,000 units = $120,000

A transfer price of $16 would increase the Western Division's income from operations by $80,000, as shown below.

Increase in Western (Purchasing) Division's Income from Operations = (Market Price – Transfer Price) × Units Transferred

Increase in Western (Purchasing) Division's Income from Operations = ($20 – $16) × 20,000 units = $80,000

With a transfer price of $16, Wilson Company's income from operations still increases by $200,000, which consists of the Eastern Division's increase of $120,000 plus the Western Division's increase of $80,000.

As shown above, negotiated price provides each division manager with an incentive to negotiate the transfer of materials. At the same time, the overall company's income from operations will also increase. However, the negotiated approach only applies when the supplying division has excess capacity. In other words, the supplying division cannot sell all its production to outside buyers at the market price.

Example Exercise 24-6 Transfer Pricing

Obj. 5

The materials used by the Winston-Salem Division of Fox Company are currently purchased from outside suppliers at $30 per unit. These same materials are produced by Fox's Flagstaff Division. The Flagstaff Division can produce the materials needed by the Winston-Salem Division at a variable cost of $15 per unit. The division is currently producing 70,000 units and has capacity of 100,000 units. The two divisions have recently negotiated a transfer price of $22 per unit for 30,000 units. By how much will each division's income increase as a result of this transfer?

Follow My Example 24-6

Increase in Flagstaff (Supplying) Division's Income from Operations = (Transfer Price – Variable Cost per Unit) × Units Transferred

Increase in Flagstaff (Supplying) Division's Income from Operations = ($22 – $15) × 30,000 units = $210,000

Increase in Winston-Salem (Purchasing) Division's Income from Operations = (Market Price – Transfer Price) × Units Transferred

Increase in Winston-Salem (Purchasing) Division's Income from Operations = ($30 – $22) × 30,000 units = $240,000

Practice Exercises: **PE 24-6A, PE 24-6B**

Cost Price Approach

Under the **cost price approach**, cost is used to set transfer prices. A variety of costs may be used in this approach, including the following:

1. Total product cost per unit
2. Variable product cost per unit

If total product cost per unit is used, direct materials, direct labor, and factory overhead are included in the transfer price. If variable product cost per unit is used, the fixed factory overhead cost is excluded from the transfer price.

Actual costs or standard (budgeted) costs may be used in applying the cost price approach. If actual costs are used, inefficiencies of the producing (supplying) division are transferred to the purchasing division. Thus, there is little incentive for the producing (supplying) division to control costs. For this reason, most companies use standard costs in the cost price approach. In this way, differences between actual and standard costs remain with the producing (supplying) division for cost control purposes.

The cost price approach is most often used when the responsibility centers are organized as cost centers. When the responsibility centers are organized as profit or investment centers, the cost price approach is normally not used.

For example, using the cost price approach when the supplying division is organized as a profit center ignores the supplying division manager's responsibility for earning profits. In this case, using the cost price approach prevents the supplying division from reporting any profit (revenues – costs) on the units transferred. As a result, the division manager has little incentive to transfer units to another division, even though it may be in the best interests of the company.

Integrity, Objectivity, and Ethics in Business

SHIFTING INCOME THROUGH TRANSFER PRICES

Transfer prices allow companies to minimize taxes by shifting taxable income from countries with high tax rates to countries with low taxes. For example, GlaxoSmithKline, a British company, and the second biggest drug maker in the world, had been in a dispute with the U.S. Internal Revenue Service (IRS) over international transfer prices since the early 1990s. The company pays U.S. taxes on income from its U.S. Division and British taxes on income from the British Division. The IRS, however, claimed that the transfer prices on sales from the British Division to the U.S. Division were too high, which reduced profits and taxes in the U.S. Division. The company received a new tax bill from the IRS in 2005 for almost $1.9 billion related to the transfer pricing issue, raising the total bill to almost $5 billion. In January 2006, the company agreed to settle this dispute with the IRS for $3.4 billion, the largest tax settlement in history.

Source: J. Whalen, "Glaxo Gets New IRS Bill Seeking Another $1.9 Billion in BackTax," *The Wall Street Journal*, January 27, 2005.

At a Glance 24

OBJ. 1 Describe the advantages and disadvantages of decentralized operations.

Key Points In a centralized business, all major planning and operating decisions are made by top management. In a decentralized business, these responsibilities are delegated to unit managers. Decentralization may be more effective because operational decisions are made by the managers closest to the operations.

Learning Outcomes	**Example Exercises**	**Practice Exercises**
• Describe the advantages of decentralization.		
• Describe the disadvantages of decentralization.		
• Describe the common types of responsibility centers and the role of responsibility accounting.		

OBJ. 2

Prepare a responsibility accounting report for a cost center.

Key Points Cost centers limit the responsibility and authority of managers to decisions related to the costs of their unit. The primary tools for planning and controlling are budgets and budget performance reports.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe cost centers.		
• Describe the responsibility reporting for a cost center.		
• Compute the over (under) budgeted costs for a cost center.	EE24-1	PE24-1A, 24-1B

OBJ. 3

Prepare responsibility accounting reports for a profit center.

Key Points In a profit center, managers have the responsibility and authority to make decisions that affect both revenues and costs. Responsibility reports for a profit center usually show income from operations for the unit.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe profit centers.		
• Determine how service department charges are allocated to profit centers.	EE24-2	PE24-2A, 24-2B
• Describe the responsibility reporting for a profit center.		
• Compute income from operations for a profit center.	EE24-3	PE24-3A, 24-3B

OBJ. 4

Compute and interpret the rate of return on investment, the residual income, and the balanced scorecard for an investment center.

Key Points In an investment center, the unit manager has the responsibility and authority to make decisions that affect the unit's revenues, expenses, and assets invested in the center. Three measures are commonly used to assess investment center performance: return on investment (ROI), residual income, and the balanced scorecard. These measures are often used to compare investment center performance.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe investment centers.		
• Describe the responsibility reporting for an investment center.		
• Compute the profit margin, investment turnover, and rate of return on investment (ROI).	EE24-4	PE24-4A, 24-4B
• Compute residual income.	EE24-5	PE24-5A, 24-5B
• Describe the balanced scorecard approach.		

OBJ. 5

Describe and illustrate how the market price, negotiated price, and cost price approaches to transfer pricing may be used by decentralized segments of a business.

Key Points When divisions within a company transfer products or provide services to each other, a transfer price is used to charge for the products or services. Transfer prices should be set so that the overall company income is increased when goods are transferred between divisions. One of three approaches is typically used to establish transfer prices: market price, negotiated price, or cost price.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe how companies determine the price used to transfer products or services between divisions.		
• Determine transfer prices using the market price approach.		
• Determine transfer prices using the negotiated price approach.	EE24-6	PE24-6A, 24-6B
• Describe the cost price approach to determining transfer price.		

Key Terms

balanced scorecard (1127)
controllable expenses (1118)
controllable revenues (1118)
cost center (1116)
cost price approach (1132)
DuPont formula (1123)
investment center (1122)
investment turnover (1123)
market price approach (1129)
negotiated price approach (1130)
profit center (1118)
profit margin (1123)
rate of return on investment (ROI) (1123)
residual income (1126)
responsibility accounting (1115)
service department charges (1118)
transfer price (1128)

Illustrative Problem

Quinn Company has two divisions, Domestic and International. Invested assets and condensed income statement data for each division for the past year ended December 31 are as follows:

	Domestic Division	International Division
Revenues	$675,000	$480,000
Operating expenses	450,000	372,400
Service department charges	90,000	50,000
Invested assets	600,000	384,000

Instructions

1. Prepare condensed income statements for the past year for each division.
2. Using the DuPont formula, determine the profit margin, investment turnover, and rate of return on investment for each division.
3. If management's minimum acceptable rate of return is 10%, determine the residual income for each division.

Solution

1.

Quinn Company
Divisional Income Statements
For the Year Ended December 31, 2012

	Domestic Division	**International Division**
Revenues	$675,000	$480,000
Operating expenses	450,000	372,400
Income from operations before service department charges	$225,000	$107,600
Service department charges	90,000	50,000
Income from operations	$135,000	$ 57,600

2. Rate of Return on Investment = Profit Margin × Investment Turnover

$$\text{Rate of Return on Investment} = \frac{\text{Income from Operations}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Invested Assets}}$$

$$\text{Domestic Division: ROI} = \frac{\$135{,}000}{\$675{,}000} \times \frac{\$675{,}000}{\$600{,}000}$$

$$\text{ROI} = 20\% \times 1.125$$

$$\text{ROI} = 22.5\%$$

$$\text{International Division: ROI} = \frac{\$57{,}600}{\$480{,}000} \times \frac{\$480{,}000}{\$384{,}000}$$

$$\text{ROI} = 12\% \times 1.25$$

$$\text{ROI} = 15\%$$

3. Domestic Division: $75,000 [$135,000 – (10% × $600,000)]
International Division: $19,200 [$57,600 – (10% × $384,000)]

Discussion Questions

1. Differentiate between a cost center and a profit center.
2. Differentiate between a profit center and an investment center.
3. Weyerhaeuser developed a system that assigns service department expenses to user divisions on the basis of actual services consumed by the division. Here are a number of Weyerhaeuser's activities in its central Financial Services Department:
    - Payroll
    - Accounts payable
    - Accounts receivable
    - Database administration—report preparation

    For each activity, identify an activity base that could be used to charge user divisions for service.
4. What is the major shortcoming of using income from operations as a performance measure for investment centers?
5. In a decentralized company in which the divisions are organized as investment centers, how could a division be considered the least profitable even though it earned the largest amount of income from operations?
6. How does using the rate of return on investment facilitate comparability between divisions of decentralized companies?
7. Why would a firm use a balanced scorecard in evaluating divisional performance?
8. What is the objective of transfer pricing?
9. When is the negotiated price approach preferred over the market price approach in setting transfer prices?
10. When using the negotiated price approach to transfer pricing, within what range should the transfer price be established?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 2 **EE 24-1** *p. 1117*

PE 24-1A Budgetary performance for cost center

Bahrke Company's costs were over budget by $300,000. The company is divided into West and East regions. The East Region's costs were under budget by $60,000. Determine the amount that the West Region's costs were over or under budget.

OBJ. 2 **EE 24-1** *p. 1117*

PE 24-1B Budgetary performance for cost center

Vonn Motion Company's costs were under budget by $175,000. The company is divided into North and South regions. The North Region's costs were over budget by $60,000. Determine the amount that the South Region's costs were over or under budget.

OBJ. 3 **EE 24-2** *p. 1121*

PE 24-2A Service department charges

The centralized employee travel department of Ohno Company has expenses of $210,000. The department has serviced a total of 3,000 travel reservations for the period. The Northeast Division has made 1,250 reservations during the period, and the Pacific Division has made 1,750 reservations. How much should each division be charged for travel services?

OBJ. 3 **EE 24-2** *p. 1121*

PE 24-2B Service department charges

The centralized computer technology department of Kearney Company has expenses of $170,000. The department has provided a total of 4,250 hours of service for the period. The Retail Division has used 2,250 hours of computer technology service during the period, and the Commercial Division has used 2,000 hours of computer technology service. How much should each division be charged for computer technology department services?

OBJ. 3 **EE 24-3** *p. 1121*

PE 24-3A Income from operations for profit center

Using the data for Ohno Company from Practice Exercise 24-2A along with the data provided below, determine the divisional income from operations for the Northeast and Pacific divisions.

	Northeast Division	Pacific Division
Sales	$825,000	$860,000
Cost of goods sold	422,000	470,000
Selling expenses	165,000	180,000

OBJ. 3 **EE 24-3** *p. 1122*

PE 24-3B Income from operations for profit center

Using the data for Kearney Company from Practice Exercise 24-2B along with the data provided below, determine the divisional income from operations for the Retail Division and the Commercial Division.

	Retail Division	Commercial Division
Sales	$1,350,000	$1,380,000
Cost of goods sold	720,000	799,000
Selling expenses	224,000	250,000

Learning Objectives *Example Exercises*

OBJ. 4 **EE 24-4** *p. 1125*

PE 24-4A Profit margin, investment turnover, and ROI

Celski Company has income from operations of $60,000, invested assets of $250,000, and sales of $800,000. Use the DuPont formula to compute the rate of return on investment and show (a) the profit margin, (b) the investment turnover, and (c) the rate of return on investment.

OBJ. 4 **EE 24-4** *p. 1125*

PE 24-4B Profit margin, investment turnover, and ROI

Roark Company has income from operations of $40,000, invested assets of $160,000, and sales of $320,000. Use the DuPont formula to compute the rate of return on investment and show (a) the profit margin, (b) the investment turnover, and (c) the rate of return on investment.

OBJ. 4 **EE 24-5** *p. 1127*

PE 24-5A Residual income

The Consumer Division of McPhie Company has income from operations of $75,000 and assets of $500,000. The minimum acceptable rate of return on assets is 11%. What is the residual income for the division?

OBJ. 4 **EE 24-5** *p. 1127*

PE 24-5B Residual income

The Commercial Division of Morse Company has income from operations of $160,000 and assets of $700,000. The minimum acceptable rate of return on assets is 9%. What is the residual income for the division?

OBJ. 5 **EE 24-6** *p. 1132*

PE 24-6A Transfer pricing

The materials used by the Vancouver Division of Roberts Company are currently purchased from outside suppliers at $45 per unit. These same materials are produced by Roberts' Tucson Division. The Tucson Division can produce the materials needed by the Vancouver Division at a variable cost of $30 per unit. The division is currently producing 100,000 units and has capacity of 130,000 units. The two divisions have recently negotiated a transfer price of $38 per unit for 25,000 units. By how much will each division's income increase as a result of this transfer?

OBJ. 5 **EE 24-6** *p. 1132*

PE 24-6B Transfer pricing

The materials used by the Burlington Division of Wilson Company are currently purchased from outside suppliers at $100 per unit. These same materials are produced by the Racine Division. The Racine Division can produce the materials needed by the Burlington Division at a variable cost of $70 per unit. The division is currently producing 160,000 units and has capacity of 200,000 units. The two divisions have recently negotiated a transfer price of $85 per unit for 40,000 units. By how much will each division's income increase as a result of this transfer?

Exercises

OBJ. 2

✔ a. (c) $3,960

EX 24-1 Budget performance reports for cost centers

Partially completed budget performance reports for Gehring Company, a manufacturer of air conditioners, are provided on the following page.

Gehring Company
Budget Performance Report—Vice President, Production
For the Month Ended April 30, 2012

Plant	Budget	Actual	Over Budget	Under Budget
Mid-Atlantic Region	$624,000	$622,500		$1,500
West Region	446,400	444,000		2,400
South Region	(g)	(h)	(i)	
	(j)	(k)	$ (l)	$3,900

Gehring Company
Budget Performance Report—Manager, South Region Plant
For the Month Ended April 30, 2012

Department	Budget	Actual	Over Budget	Under Budget
Chip Fabrication	(a)	(b)	(c)	
Electronic Assembly	$127,680	$129,360	$ 1,680	
Final Assembly	205,500	204,960		$540
	(d)	(e)	$5,640 (f)	$540

Gehring Company
Budget Performance Report—Supervisor, Chip Fabrication
For the Month Ended April 30, 2012

Department	Budget	Actual	Over Budget	Under Budget
Factory wages	$ 36,960	$ 39,600	$2,640	
Materials	104,400	103,680		$720
Power and light	5,760	6,840	1,080	
Maintenance	10,080	11,040	960	
	$157,200	$161,160	$4,680	$720

a. Complete the budget performance reports by determining the correct amounts for the lettered spaces.

b. Compose a memo to Tony Amoruso, vice president of production for Gehring Company, explaining the performance of the production division for April.

OBJ. 3

✔ Commercial Division income from operations, $101,080

EX 24-2 Divisional income statements

The following data were summarized from the accounting records for Jareau Construction Company for the year ended June 30, 2012:

Cost of goods sold:		Service department charges:	
Commercial Division	$523,000	Commercial Division	$ 64,320
Residential Division	242,100	Residential Division	38,760
Administrative expenses:		Net sales:	
Commercial Division	$ 85,600	Commercial Division	$774,000
Residential Division	73,500	Residential Division	425,000

Prepare divisional income statements for Jareau Construction Company.

OBJ. 3

EX 24-3 Service department charges and activity bases

For each of the following service departments, identify an activity base that could be used for charging the expense to the profit center.

a. Electronic data processing
b. Central purchasing
c. Accounts receivable
d. Legal
e. Duplication services
f. Telecommunications

OBJ. 3
✓ c. 5

EX 24-4 Activity bases for service department charges

For each of the following service departments, select the activity base listed that is most appropriate for charging service expenses to responsible units.

Service Department	Activity Base
a. Telecommunications	1. Number of conference attendees
b. Accounts Receivable	2. Number of computers
c. Central Purchasing	3. Number of employees trained
d. Training	4. Number of telephone lines
e. Computer Support	5. Number of purchase requisitions
f. Conferences	6. Number of sales invoices
g. Employee Travel	7. Number of payroll checks
h. Payroll Accounting	8. Number of travel claims

OBJ. 3
✓ b. Commercial payroll, $21,560

EX 24-5 Service department charges

In divisional income statements prepared for Brooks Construction Company, the Payroll Department costs are charged back to user divisions on the basis of the number of payroll checks, and the Purchasing Department costs are charged back on the basis of the number of purchase requisitions. The Payroll Department had expenses of $84,000, and the Purchasing Department had expenses of $40,040 for the year. The following annual data for Residential, Commercial, and Government Contract divisions were obtained from corporate records:

	Residential	Commercial	Government Contract
Sales	$720,000	$975,000	$2,240,000
Number of employees:			
Weekly payroll (52 weeks per year)	200	100	120
Monthly payroll	50	80	50
Number of purchase requisitions per year	3,000	2,500	2,200

a. Determine the total amount of payroll checks and purchase requisitions processed per year by the company and each division.

b. Using the activity base information in (a), determine the annual amount of payroll and purchasing costs charged back to the Residential, Commercial, and Government Contract divisions from payroll and purchasing services.

c. Why does the Residential Division have a larger service department charge than the other two divisions, even though its sales are lower?

OBJ. 3
✓ b. Help desk, $75,600

EX 24-6 Service department charges and activity bases

Harris Corporation, a manufacturer of electronics and communications systems, uses a service department charge system to charge profit centers with Computing and Communications Services (CCS) service department costs. The following table identifies an abbreviated list of service categories and activity bases used by the CCS department. The table also includes some assumed cost and activity base quantity information for each service for April.

CCS Service Category	Activity Base	Assumed Cost	Assumed Activity Base Quantity
Help desk	Number of calls	$135,200	3,380
Network center	Number of devices monitored	893,200	12,760
Electronic mail	Number of user accounts	117,600	8,400
Local voice support	Number of phone extensions	263,120	11,960

One of the profit centers for Harris Corporation is the Communication Systems (COMM) sector. Assume the following information for the COMM sector:

- The sector has 3,500 employees, of whom 30% are office employees.
- All the office employees have a phone, and 90% of them have a computer on the network.

- One hundred percent of the employees with a computer also have an e-mail account.
- The average number of help desk calls for April was 2.0 calls per individual with a computer.
- There are 300 additional printers, servers, and peripherals on the network beyond the personal computers.

a. Determine the service charge rate for the four CCS service categories for April.

b. Determine the charges to the COMM sector for the four CCS service categories for April.

OBJ. 3

✔ Retail income from operations, $980,000

EX 24-7 Divisional income statements with service department charges

Ryan Snow Sports Company has two divisions, Wholesale and Retail, and two corporate service departments, Tech Support and Accounts Payable. The corporate expenses for the year ended December 31, 2012, are as follows:

Tech Support Department	$ 845,000
Accounts Payable Department	320,000
Other corporate administrative expenses	502,300
Total corporate expense	$1,667,300

The other corporate administrative expenses include officers' salaries and other expenses required by the corporation. The Tech Support Department charges the divisions for services rendered, based on the number of computers in the department, and the Accounts Payable Department charges divisions for services, based on the number of checks issued. The usage of service by the two divisions is as follows:

	Tech Support	Accounts Payable
Wholesale Division	400 computers	5,600 checks
Retail Division	250	10,400
Total	650 computers	16,000 checks

The service department charges of the Tech Support Department and the Accounts Payable Department are considered controllable by the divisions. Corporate administrative expenses are not considered controllable by the divisions. The revenues, cost of goods sold, and operating expenses for the two divisions are as follows:

	Wholesale	Retail
Revenues	$7,430,000	$6,184,000
Cost of goods sold	4,123,000	3,125,000
Operating expenses	1,465,000	1,546,000

Prepare the divisional income statements for the two divisions.

OBJ. 3

✔ b. Income from operations, Cargo Division, $62,500

EX 24-8 Corrections to service department charges

Temasec Airlines, Inc., has two divisions organized as profit centers, the Passenger Division and the Cargo Division. The following divisional income statements were prepared:

Temasec Airlines, Inc.
Divisional Income Statements
For the Year Ended June 30, 2012

	Passenger Division		Cargo Division	
Revenues		$2,100,000		$2,100,000
Operating expenses		1,700,000		1,900,000
Income from operations before service department charges		$ 400,000		$ 200,000
Less service department charges:				
Training	$ 87,500		$ 87,500	
Flight scheduling	75,000		75,000	
Reservations	105,000	267,500	105,000	267,500
Income from operations		$ 132,500		$ (67,500)

The service department charge rate for the service department costs was based on revenues. Since the revenues of the two divisions were the same, the service department charges to each division were also the same.

The following additional information is available:

	Passenger Division	Cargo Division	Total
Number of personnel trained	250	100	350
Number of flights	300	420	720
Number of reservations requested	16,000	0	16,000

a. Does the income from operations for the two divisions accurately measure performance? Explain.

b. Correct the divisional income statements, using the activity bases provided above in revising the service department charges.

OBJ. 3

✔ Income from operations, Winter Sports Division, $1,020,000

EX 24-9 Profit center responsibility reporting

O'Neill Sporting Goods Co. operates two divisions—the Winter Sports Division and the Summer Sports Division. The following income and expense accounts were provided from the trial balance as of June 30, 2012, the end of the current fiscal year, after all adjustments, including those for inventories, were recorded and posted:

Sales—Winter Sports Division	$21,500,000
Sales—Summer Sports Division	24,210,000
Cost of Goods Sold—Winter Sports Division	12,900,000
Cost of Goods Sold—Summer Sports Division	14,041,800
Sales Expense—Winter Sports Division	3,440,000
Sales Expense—Summer Sports Division	3,389,400
Administrative Expense—Winter Sports Division	2,150,000
Administrative Expense—Summer Sports Division	2,154,690
Advertising Expense	989,000
Transportation Expense	411,600
Accounts Receivable Collection Expense	225,600
Warehouse Expense	2,100,000

The bases to be used in allocating expenses, together with other essential information, are as follows:

a. Advertising expense—incurred at headquarters, charged back to divisions on the basis of usage: Winter Sports Division, $465,000; Summer Sports Division, $524,000.

b. Transportation expense—charged back to divisions at a charge rate of $14.00 per bill of lading: Winter Sports Division, 14,000 bills of lading; Summer Sports Division, 15,400 bills of lading.

c. Accounts receivable collection expense—incurred at headquarters, charged back to divisions at a charge rate of $8.00 per invoice: Winter Sports Division, 13,000 sales invoices; Summer Sports Division, 15,200 sales invoices.

d. Warehouse expense—charged back to divisions on the basis of floor space used in storing division products: Winter Sports Division, 140,000 square feet; Summer Sports Division, 100,000 square feet.

Prepare a divisional income statement with two column headings: Winter Sports Division and Summer Sports Division. Provide supporting schedules for determining service department charges.

OBJ. 4

✔ a. Retail, 18%

EX 24-10 Rate of return on investment

The income from operations and the amount of invested assets in each division of Steele Industries are as follows:

	Income from Operations	Invested Assets
Retail Division	$90,000	$500,000
Commercial Division	49,000	350,000
Internet Division	85,000	425,000

a. Compute the rate of return on investment for each division.

b. Which division is the most profitable per dollar invested?

OBJ. 4

✔ a. Internet Division, $46,750

EX 24-11 Residual income

Based on the data in Exercise 24-10, assume that management has established a 9% minimum acceptable rate of return for invested assets.

a. Determine the residual income for each division.

b. Which division has the most residual income?

OBJ. 4

✔ d. 1.25

EX 24-12 Determining missing items in rate of return computation

One item is omitted from each of the following computations of the rate of return on investment:

Rate of Return on Investment	=	Profit Margin	×	Investment Turnover
10%	=	8%	×	(a)
(b)	=	15%	×	0.80
14%	=	(c)	×	2.00
20%	=	16%	×	(d)
(e)	=	10%	×	1.50

Determine the missing items, identifying each by the appropriate letter.

OBJ. 4

✔ a. ROI, 36%

EX 24-13 Profit margin, investment turnover, and rate of return on investment

The condensed income statement for the Domestic Division of Fahkahany Industries Inc. is as follows (assuming no service department charges):

Sales	$4,500,000
Cost of goods sold	2,611,000
Gross profit	$1,889,000
Administrative expenses	539,000
Income from operations	$1,350,000

The manager of the Domestic Division is considering ways to increase the rate of return on investment.

a. Using the DuPont formula for rate of return on investment, determine the profit margin, investment turnover, and rate of return on investment of the Domestic Division, assuming that $3,750,000 of assets have been invested in the Domestic Division.

b. If expenses could be reduced by $450,000 without decreasing sales, what would be the impact on the profit margin, investment turnover, and rate of return on investment for the Domestic Division?

OBJ. 4

✔ a. Media Networks ROI, 17.6%

EX 24-14 Rate of return on investment

The Walt Disney Company has four profitable business segments, described as follows:

- **Media Networks:** The ABC television and radio network, Disney channel, ESPN, A&E, E!, and Disney.com.
- **Parks and Resorts:** Walt Disney World Resort, Disneyland, Disney Cruise Line, and other resort properties.
- **Studio Entertainment:** Walt Disney Pictures, Touchstone Pictures, Hollywood Pictures, Miramax Films, and Buena Vista Theatrical Productions.
- **Consumer Products:** Character merchandising, Disney stores, books, and magazines.

Disney recently reported sector income from operations, revenue, and invested assets (in millions) as follows:

	Income from Operations	Revenue	Invested Assets
Media Networks	$4,765	$16,209	$26,936
Parks and Resorts	1,418	10,667	16,945
Studio Entertainment	175	6,136	11,104
Consumer Products	609	2,425	1,278

a. Use the DuPont formula to determine the rate of return on investment for the four Disney sectors. Round whole percents to one decimal place and investment turnover to two decimal places.

b. How do the four sectors differ in their profit margin, investment turnover, and return on investment?

OBJ. 4

✔ c. $64,400

EX 24-15 Determining missing items in rate of return and residual income computations

Data for Magnum Company is presented in the following table of rates of return on investment and residual incomes:

Invested Assets	Income from Operations	Rate of Return on Investment	Minimum Rate of Return	Minimum Acceptable Income from Operations	Residual Income
$920,000	$202,400	(a)	15%	(b)	(c)
$610,000	(d)	(e)	(f)	$67,100	$24,400
$440,000	(g)	16%	(h)	$57,200	(i)
$280,000	$50,400	(j)	14%	(k)	(l)

Determine the missing items, identifying each item by the appropriate letter.

OBJ. 4

✔ a. (e) $400,000

EX 24-16 Determining missing items from computations

Data for the North, South, East, and West divisions of Gateway Company are as follows:

	Sales	Income from Operations	Invested Assets	Rate of Return on Investment	Profit Margin	Investment Turnover
North	$625,000	(a)	(b)	20%	10%	(c)
South	(d)	$84,000	(e)	(f)	14%	1.5
East	$800,000	(g)	$320,000	18%	(h)	(i)
West	$950,000	$142,500	$950,000	(j)	(k)	(l)

a. Determine the missing items, identifying each by the letters (a) through (l). Round percents and investment turnover to one decimal place.

b. Determine the residual income for each division, assuming that the minimum acceptable rate of return established by management is 11%.

c. Which division is the most profitable in terms of (1) return on investment and (2) residual income?

OBJ. 4

EX 24-17 Rate of return on investment, residual income

Starwood Hotels & Resorts Worldwide provides lodging services around the world. The company is separated into two major divisions.

- **Hotel Ownership:** Hotels owned and operated by Starwood.
- **Vacation Ownership:** Resort properties developed, owned, and operated for timeshare vacation owners.

Financial information for each division, from a recent annual report, is as follows (in millions):

	Hotel Ownership	Vacation Ownership
Revenues	$5,013	$ 894
Income from operations	785	136
Total assets	6,728	2,183

a. Use the DuPont formula to determine the return on investment for each of the Starwood business divisions. Round whole percents to one decimal place and investment turnover to two decimal places.

b. Determine the residual income for each division, assuming a minimum acceptable income of 8% of total assets. Round minimal acceptable return to the nearest million dollars.

c. Interpret your results.

OBJ. 4

EX 24-18 Balanced scorecard

American Express Company is a major financial services company, noted for its American Express® card. Below are some of the performance measures used by the company in its balanced scorecard.

Average cardmember spending
Cards in force
Earnings growth
Hours of credit consultant training
Investment in information technology
Number of Internet features
Number of merchant signings
Number of card choices
Number of new card launches
Return on equity
Revenue growth

For each measure, identify whether the measure best fits the innovation, customer, internal process, or financial dimension of the balanced scorecard.

OBJ. 4

EX 24-19 Balanced scorecard

Several years ago, United Parcel Service (UPS) believed that the Internet was going to change the parcel delivery market and would require UPS to become a more nimble and customer-focused organization. As a result, UPS replaced its old measurement system, which was 90% oriented toward financial performance, with a balanced scorecard. The scorecard emphasized four "point of arrival" measures, which were:

1. Customer satisfaction index—a measure of customer satisfaction.
2. Employee relations index—a measure of employee sentiment and morale.
3. Competitive position—delivery performance relative to competition.
4. Time in transit—the time from order entry to delivery.

a. Why did UPS introduce a balanced scorecard and nonfinancial measures in its new performance measurement system?

b. Why do you think UPS included a factor measuring employee sentiment?

OBJ. 5

✔ a. $1,500,000

EX 24-20 Decision on transfer pricing

Materials used by the Truck Division of Goldman Motors are currently purchased from outside suppliers at a cost of $310 per unit. However, the same materials are available from the Components Division. The Components Division has unused capacity and can produce the materials needed by the Truck Division at a variable cost of $250 per unit.

a. If a transfer price of $272 per unit is established and 25,000 units of materials are transferred, with no reduction in the Components Division's current sales, how much would Goldman Motors' total income from operations increase?

b. How much would the Truck Division's income from operations increase?

c. How much would the Components Division's income from operations increase?

OBJ. 5

✓ b. $500,000

EX 24-21 Decision on transfer pricing

Based on Goldman Motors' data in Exercise 24–20, assume that a transfer price of $290 has been established and that 25,000 units of materials are transferred, with no reduction in the Components Division's current sales.

a. How much would Goldmon Motors' total income from operations increase?

b. How much would the Truck Division's income from operations increase?

c. How much would the Components Division's income from operations increase?

d. If the negotiated price approach is used, what would be the range of acceptable transfer prices and why?

Problems Series A

OBJ. 2

PR 24-1A Budget performance report for a cost center

World-Tec Company sells electronics over the Internet. The International Division is organized as a cost center. The budget for the International Division for the month ended March 31, 2012, is as follows (in thousands):

Customer service salaries	$ 325,500
Insurance and property taxes	68,250
Distribution salaries	519,250
Marketing salaries	612,125
Engineer salaries	498,125
Warehouse wages	348,800
Equipment depreciation	109,400
Total	$2,481,450

During March, the costs incurred in the International Division were as follows:

Customer service salaries	$ 416,700
Insurance and property taxes	66,200
Distribution salaries	514,000
Marketing salaries	685,500
Engineer salaries	488,100
Warehouse wages	334,900
Equipment depreciation	109,375
Total	$2,614,775

Instructions

1. Prepare a budget performance report for the director of the International Division for the month of March.
2. For which costs might the director be expected to request supplemental reports?

OBJ. 3

✓ 1. Income from operations, Central Division, $390,000

PR 24-2A Profit center responsibility reporting

Johnson Products Inc. has three regional divisions organized as profit centers. The chief executive officer (CEO) evaluates divisional performance, using income from operations as a percent of revenues. The following quarterly income and expense accounts were provided from the trial balance as of December 31, 2012:

Revenues—East	$ 720,000
Revenues—West	860,000
Revenues—Central	1,560,000
Operating Expenses—East	456,150
Operating Expenses—West	511,700
Operating Expenses—Central	943,550
Corporate Expenses—Shareholder Relations	112,000
Corporate Expenses—Customer Support	385,000
Corporate Expenses—Legal	152,000
General Corporate Officers' Salaries	240,000

The company operates three service departments: Shareholder Relations, Customer Support, and Legal. The Shareholder Relations Department conducts a variety of services for shareholders of the company. The Customer Support Department is the company's point of contact for new service, complaints, and requests for repair. The department believes that the number of customer contacts is an activity base for this work. The Legal Department provides legal services for division management. The department believes that the number of hours billed is an activity base for this work. The following additional information has been gathered:

	East	West	Central
Number of customer contacts	4,375	5,250	7,875
Number of hours billed	950	1,520	1,330

Instructions

1. Prepare quarterly income statements showing income from operations for the three divisions. Use three column headings: East, West, and Central.
2. Identify the most successful division according to the profit margin.
3. Provide a recommendation to the CEO for a better method for evaluating the performance of the divisions. In your recommendation, identify the major weakness of the present method.

OBJ. 4

✓ 2. Mutual Fund Division, ROI, 18%

PR 24-3A Divisional income statements and rate of return on investment analysis

Edward Baird Company is a diversified investment company with three operating divisions organized as investment centers. Condensed data taken from the records of the three divisions for the year ended June 30, 2012, are as follows:

	Mutual Fund Division	Electronic Brokerage Division	Investment Banking Division
Fee revenue	$3,450,000	$2,800,000	$3,800,000
Operating expenses	2,415,000	2,632,000	2,850,000
Invested assets	5,750,000	800,000	4,750,000

The management of Edward Baird Company is evaluating each division as a basis for planning a future expansion of operations.

Instructions

1. Prepare condensed divisional income statements for the three divisions, assuming that there were no service department charges.
2. Using the DuPont formula for rate of return on investment, compute the profit margin, investment turnover, and rate of return on investment for each division.
3. If available funds permit the expansion of operations of only one division, which of the divisions would you recommend for expansion, based on parts (1) and (2)? Explain.

OBJ. 4

✓ 1. ROI, 15.6%

PR 24-4A Effect of proposals on divisional performance

A condensed income statement for the Golf Division of Rewind Sports Inc. for the year ended December 31, 2012, is as follows:

Sales	$2,400,000
Cost of goods sold	1,663,000
Gross profit	$ 737,000
Operating expenses	425,000
Income from operations	$ 312,000
Invested assets	$2,000,000

Assume that the Golf Division received no charges from service departments. The president of Rewind Sports has indicated that the division's rate of return on a $2,000,000

investment must be increased to at least 18% by the end of the next year if operations are to continue. The division manager is considering the following three proposals:

Proposal 1: Transfer equipment with a book value of $400,000 to other divisions at no gain or loss and lease similar equipment. The annual lease payments would exceed the amount of depreciation expense on the old equipment by $72,000. This increase in expense would be included as part of the cost of goods sold. Sales would remain unchanged.

Proposal 2: Purchase new and more efficient machining equipment and thereby reduce the cost of goods sold by $264,000. Sales would remain unchanged, and the old equipment, which has no remaining book value, would be scrapped at no gain or loss. The new equipment would increase invested assets by an additional $1,000,000 for the year.

Proposal 3: Reduce invested assets by discontinuing a product line. This action would eliminate sales of $425,000, cost of goods sold of $284,250, and operating expenses of $125,000. Assets of $1,012,500 would be transferred to other divisions at no gain or loss.

Instructions

1. Using the DuPont formula for rate of return on investment, determine the profit margin, investment turnover, and rate of return on investment for the Golf Division for the past year.
2. Prepare condensed estimated income statements and compute the invested assets for each proposal.
3. Using the DuPont formula for rate of return on investment, determine the profit margin, investment turnover, and rate of return on investment for each proposal.
4. Which of the three proposals would meet the required 18% rate of return on investment?
5. If the Golf Division were in an industry where the profit margin could not be increased, how much would the investment turnover have to increase to meet the president's required 18% rate of return on investment? Round to one decimal place.

OBJ. 4

✓ 2. Business Division ROI, 24.0%

PR 24-5A Divisional performance analysis and evaluation

The vice president of operations of Avigi IQ Company is evaluating the performance of two divisions organized as investment centers. Invested assets and condensed income statement data for the past year for each division are as follows:

	Business Division	Consumer Division
Sales	$1,800,000	$1,850,000
Cost of goods sold	940,000	950,000
Operating expenses	572,000	493,000
Invested assets	1,200,000	2,312,500

Instructions

1. Prepare condensed divisional income statements for the year ended December 31, 2012, assuming that there were no service department charges.
2. Using the DuPont formula for rate of return on investment, determine the profit margin, investment turnover, and rate of return on investment for each division.
3. If management desires a minimum acceptable rate of return of 18%, determine the residual income for each division.
4. Discuss the evaluation of the two divisions, using the performance measures determined in parts (1), (2), and (3).

OBJ. 5

✓ 3. Total income from operations, $1,092,000

PR 24-6A Transfer pricing

Eccles, Inc., manufactures electronic products, with two operating divisions, the Electronics and Instruments divisions. Condensed divisional income statements, which involve no intracompany transfers and which include a breakdown of expenses into variable and fixed components, are as follows:

Eccles, Inc.
Divisional Income Statements
For the Year Ended December 31, 2012

		Electronics Division	Instruments Division	Total
Sales:				
12,000 units @	$120 per unit	$1,440,000		$1,440,000
18,000 units @	$228 per unit		$4,104,000	4,104,000
		$1,440,000	$4,104,000	$5,544,000
Expenses:				
Variable:				
12,000 units @	$86 per unit	$1,032,000		$1,032,000
18,000 units @	$162* per unit		$2,916,000	2,916,000
Fixed		168,000	432,000	600,000
Total expenses		$1,200,000	$3,348,000	$4,548,000
Income from operations		$ 240,000	$ 756,000	$ 996,000

*$126 of the $162 per unit represents materials costs, and the remaining $36 per unit represents other variable conversion expenses incurred within the Instruments Division.

The Electronics Division is presently producing 12,000 units out of a total capacity of 14,400 units. Materials used in producing the Instruments Division's product are currently purchased from outside suppliers at a price of $126 per unit. The Electronics Division is able to produce the materials used by the Instruments Division. Except for the possible transfer of materials between divisions, no changes are expected in sales and expenses.

Instructions

1. Would the market price of $126 per unit be an appropriate transfer price for Eccles, Inc.? Explain.
2. If the Instruments Division purchases 2,400 units from the Electronics Division, rather than externally, at a negotiated transfer price of $96 per unit, how much would the income from operations of each division and the total company income from operations increase?
3. Prepare condensed divisional income statements for Eccles, Inc., based on the data in part (2).
4. If a transfer price of $105 per unit is negotiated, how much would the income from operations of each division and the total company income from operations increase?
5. a. What is the range of possible negotiated transfer prices that would be acceptable for Eccles, Inc.?
   b. Assuming that the managers of the two divisions cannot agree on a transfer price, what price would you suggest as the transfer price?

Problems Series B

OBJ. 2

PR 24-1B Budget performance report for a cost center

The Eastern District of Blankfine Products, Inc., is organized as a cost center. The budget for the Eastern District of Blankfine Products, Inc., for the month ended October 31, 2012, is as follows:

Sales salaries	$ 683,200
System administration salaries	373,460
Customer service salaries	127,200
Billing salaries	82,300
Maintenance	226,170
Depreciation of plant and equipment	76,860
Insurance and property taxes	34,400
Total	$1,603,590

During October, the costs incurred in the Eastern District were as follows:

Sales salaries	$ 682,400
System administration salaries	373,100
Customer service salaries	150,100
Billing salaries	81,750
Maintenance	227,500
Depreciation of plant and equipment	76,860
Insurance and property taxes	34,500
Total	$1,626,210

Instructions

1. Prepare a budget performance report for the manager of the Eastern District of Blankfine Products for the month of October.
2. For which costs might the supervisor be expected to request supplemental reports?

OBJ. 3

✓ 1. Income from operations, West Region, $534,375

PR 24-2B Profit center responsibility reporting

Train-X Railroad Company organizes its three divisions, the North (N), South (S), and West (W) regions, as profit centers. The chief executive officer (CEO) evaluates divisional performance, using income from operations as a percent of revenues. The following quarterly income and expense accounts were provided from the trial balance as of December 31, 2012:

Revenues—N Region	$2,625,000
Revenues—S Region	3,940,000
Revenues—W Region	3,562,500
Operating Expenses—N Region	1,856,250
Operating Expenses—S Region	3,081,000
Operating Expenses—W Region	2,525,625
Corporate Expenses—Dispatching	180,000
Corporate Expenses—Equipment Management	1,110,000
Corporate Expenses—Treasurer's	510,000
General Corporate Officers' Salaries	960,000

The company operates three service departments: the Dispatching Department, the Equipment Management Department, and the Treasurer's Department. The Dispatching Department manages the scheduling and releasing of completed trains. The Equipment Management Department manages the railroad cars inventories. It makes sure the right freight cars are at the right place at the right time. The Treasurer's Department conducts a variety of services for the company as a whole. The following additional information has been gathered:

	North	South	West
Number of scheduled trains	500	850	650
Number of railroad cars in inventory	4,625	6,475	7,400

Instructions

1. Prepare quarterly income statements showing income from operations for the three regions. Use three column headings: North, South, and West.
2. Identify the most successful region according to the profit margin.
3. Provide a recommendation to the CEO for a better method for evaluating the performance of the regions. In your recommendation, identify the major weakness of the present method.

OBJ. 4

✔ 2. Cereal Division ROI, 14.4%

PR 24-3B Divisional income statements and rate of return on investment analysis

Earthy Grains Food Company is a diversified food company with three operating divisions organized as investment centers. Condensed data taken from the records of the three divisions for the year ended June 30, 2012, are as follows:

	Cereal Division	Snack Cake Division	Retail Bakeries Division
Sales	$4,950,000	$5,400,000	$4,896,000
Cost of goods sold	3,725,000	3,800,000	3,400,000
Operating expenses	433,000	844,000	516,800
Invested assets	5,500,000	6,750,000	4,080,000

The management of Earthy Grains Food Company is evaluating each division as a basis for planning a future expansion of operations.

Instructions

1. Prepare condensed divisional income statements for the three divisions, assuming that there were no service department charges.
2. Using the DuPont formula for rate of return on investment, compute the profit margin, investment turnover, and rate of return on investment for each division.
3. If available funds permit the expansion of operations of only one division, which of the divisions would you recommend for expansion, based on parts (1) and (2)? Explain.

OBJ. 4

✔ 3. Proposal 3 ROI, 13.2%

PR 24-4B Effect of proposals on divisional performance

A condensed income statement for the Electronics Division of Fannie Industries Inc. for the year ended January 31, 2012, is as follows:

Sales	$870,000
Cost of goods sold	455,600
Gross profit	$414,400
Operating expenses	310,000
Income from operations	$104,400
Invested assets	$696,000

Assume that the Electronics Division received no charges from service departments.

The president of Fannie Industries Inc. has indicated that the division's rate of return on a $696,000 investment must be increased to at least 20% by the end of the next year if operations are to continue. The division manager is considering the following three proposals:

Proposal 1: Transfer equipment with a book value of $96,000 to other divisions at no gain or loss and lease similar equipment. The annual lease payments would be less than the amount of depreciation expense on the old equipment by $34,800. This decrease in expense would be included as part of the cost of goods sold. Sales would remain unchanged.

Proposal 2: Reduce invested assets by discontinuing a product line. This action would eliminate sales of $100,000, cost of goods sold of $42,600, and operating expenses of $30,000. Assets of $146,000 would be transferred to other divisions at no gain or loss.

Proposal 3: Purchase new and more efficient machinery and thereby reduce the cost of goods sold by $87,000. Sales would remain unchanged, and the old machinery, which has no remaining book value, would be scrapped at no gain or loss. The new machinery would increase invested assets by $754,000 for the year.

Instructions

1. Using the DuPont formula for rate of return on investment, determine the profit margin, investment turnover, and rate of return on investment for the Electronics Division for the past year. Round investment turnover to two decimal places.
2. Prepare condensed estimated income statements and compute the invested assets for each proposal.

3. Using the DuPont formula for rate of return on investment, determine the profit margin, investment turnover, and rate of return on investment for each proposal.
4. Which of the three proposals would meet the required 20% rate of return on investment?
5. If the Electronics Division were in an industry where the profit margin could not be increased, how much would the investment turnover have to increase to meet the president's required 20% rate of return on investment? Round to one decimal place.

OBJ. 4

✓ 2. Road Bike Division ROI, 22.0%

PR 24-5B Divisional performance analysis and evaluation

The vice president of operations of Cantor Bike Company is evaluating the performance of two divisions organized as investment centers. Invested assets and condensed income statement data for the past year for each division are as follows:

	Road Bike Division	Mountain Bike Division
Sales	$1,210,000	$1,440,000
Cost of goods sold	895,000	1,150,000
Operating expenses	194,000	74,000
Invested assets	550,000	1,200,000

Instructions

1. Prepare condensed divisional income statements for the year ended December 31, 2012, assuming that there were no service department charges.
2. Using the DuPont formula for rate of return on investment, determine the profit margin, investment turnover, and rate of return on investment for each division.
3. If management's minimum acceptable rate of return is 16%, determine the residual income for each division.
4. Discuss the evaluation of the two divisions, using the performance measures determined in parts (1), (2), and (3).

OBJ. 5

✓ 3. Navigational Systems Division, $210,750

PR 24-6B Transfer pricing

Lockhart Industries, Inc., is a diversified aerospace company, including two operating divisions, Semiconductors and Navigational Systems divisions. Condensed divisional income statements, which involve no intracompany transfers and which include a breakdown of expenses into variable and fixed components, are as follows:

Lockhart Industries, Inc.
Divisional Income Statements
For the Year Ended December 31, 2012

		Semiconductors Division	Navigational Systems Division	Total
Sales:				
1,200 units @	$990 per unit	$1,188,000		$1,188,000
1,875 units @	$1,488 per unit		$2,790,000	2,790,000
		$1,188,000	$2,790,000	$3,978,000
Expenses:				
Variable:				
1,200 units @	$582 per unit	$ 698,400		$ 698,400
1,875 units @	$1,170* per unit		$2,193,750	2,193,750
Fixed		366,000	477,000	843,000
Total expenses		$1,064,400	$2,670,750	$3,735,150
Income from operations		$ 123,600	$ 119,250	$ 242,850

*$1,080 of the $1,170 per unit represents materials costs, and the remaining $90 per unit represents other variable conversion expenses incurred within the Navigational Systems Division.

The Semiconductors Division is presently producing 1,200 units out of a total capacity of 1,500 units. Materials used in producing the Navigational Systems Division's product are currently purchased from outside suppliers at a price of $1,080 per unit. The

Semiconductors Division is able to produce the components used by the Navigational Systems Division. Except for the possible transfer of materials between divisions, no changes are expected in sales and expenses.

Instructions

1. Would the market price of $1,080 per unit be an appropriate transfer price for Lockhart Industries, Inc.? Explain.
2. If the Navigational Systems Division purchases 300 units from the Semiconductors Division, rather than externally, at a negotiated transfer price of $775 per unit, how much would the income from operations of each division and total company income from operations increase?
3. Prepare condensed divisional income statements for Lockhart Industries, Inc., based on the data in part (2).
4. If a transfer price of $850 per unit is negotiated, how much would the income from operations of each division and total company income from operations increase?
5. a. What is the range of possible negotiated transfer prices that would be acceptable for Lockhart Industries, Inc.?
   b. Assuming that the managers of the two divisions cannot agree on a transfer price, what price would you suggest as the transfer price?

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA 24-1 Service department charges

The Kirkland Company has three central service departments: sales administration, credit, and human resources. The expenses for the three departments are as follows for the year ended December 31, 2012:

Sales administration	$120,000
Credit	84,000
Human resources	185,000
Total	$389,000

Service department expenses are allocated to divisions based on an appropriate activity base. The activity bases associated with each service department to each division for 2012 is as follows:

Service Departments	Northern Division	Southern Division	Total	
Sales administration	1,650	3,850	5,500	sales orders
Credit	4,900	9,100	14,000	customers
Human resources	400	600	1,000	employees

a. Open the Excel file *SA24-1_2e*.

b. Prepare a report showing the service department charges allocated to each division.

c. When you have completed the report, perform a "save as," replacing the entire file name with the following:

SA24-1_2e[your first name initial]_[your last name]

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SA 24-2 Service department charges

Bass Company allocates central service department expenses from the accounting, travel, and purchasing departments to the Retail, Commercial, and Municipal Divisions. The expenses for the three service departments for the year ended December 31, 2012 are:

Accounting	$264,000
Travel	94,000
Purchasing	192,000
Total	$550,000

The activity base used by each service department in allocating service department expenses to the divisions was determined as follows:

Department	Activity Base
Accounting	Number of transactions
Travel	Number of travel requests
Purchasing	Number of purchase orders

The use of services by the three divisions is as follows:

	Service Usage		
Division	Accounting	Travel	Purchasing
Retail	22,400 trans.	250 trav. req.	1,500 purch. ord.
Commercial	12,500	190	900
Municipal	5,100	60	600
Total	40,000 trans.	500 trav. req.	3,000 purch. ord.

a. Open the Excel file *SA24-2_2e*.

b. Prepare a report showing the service department charges allocated to each division.

c. When you have completed the report, perform a "save as," replacing the entire file name with the following:

SA24-2_2e[your first name initial]_[your last name]

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SA 24-3 Divisional income statement

The revenues and direct operating expenses for the two divisions of the UniCast Cable Company for the year ended December 31, 2012, are as follows:

	Eastern Division	Western Division
Revenues	$4,100,000	$3,500,000
Operating expenses	2,450,000	2,200,000

There are three central service departments: billing, payroll, and service and repairs. The expenses associated with these central service departments for December 31, 2012, are as follows:

Billing	$310,000
Payroll	265,000
Service and repairs	684,000
Total	$1,259,000

The central service department expenses are allocated to the two divisions based on relevant activity bases. The billing, payroll, and service and repairs departments are allocated to the divisions on the basis of bills, payroll checks, and repair requests, respectively.

The consumption of activity by the two divisions from the three service departments for 2012 is as follows:

	Eastern Division	Western Division	Total	
Billing	18,500	21,500	40,000	bills
Payroll	1,530	1,870	3,400	payroll chks.
Service and repairs	408	442	850	serv. requests

a. Open the Excel file *SA24-3_2e.*

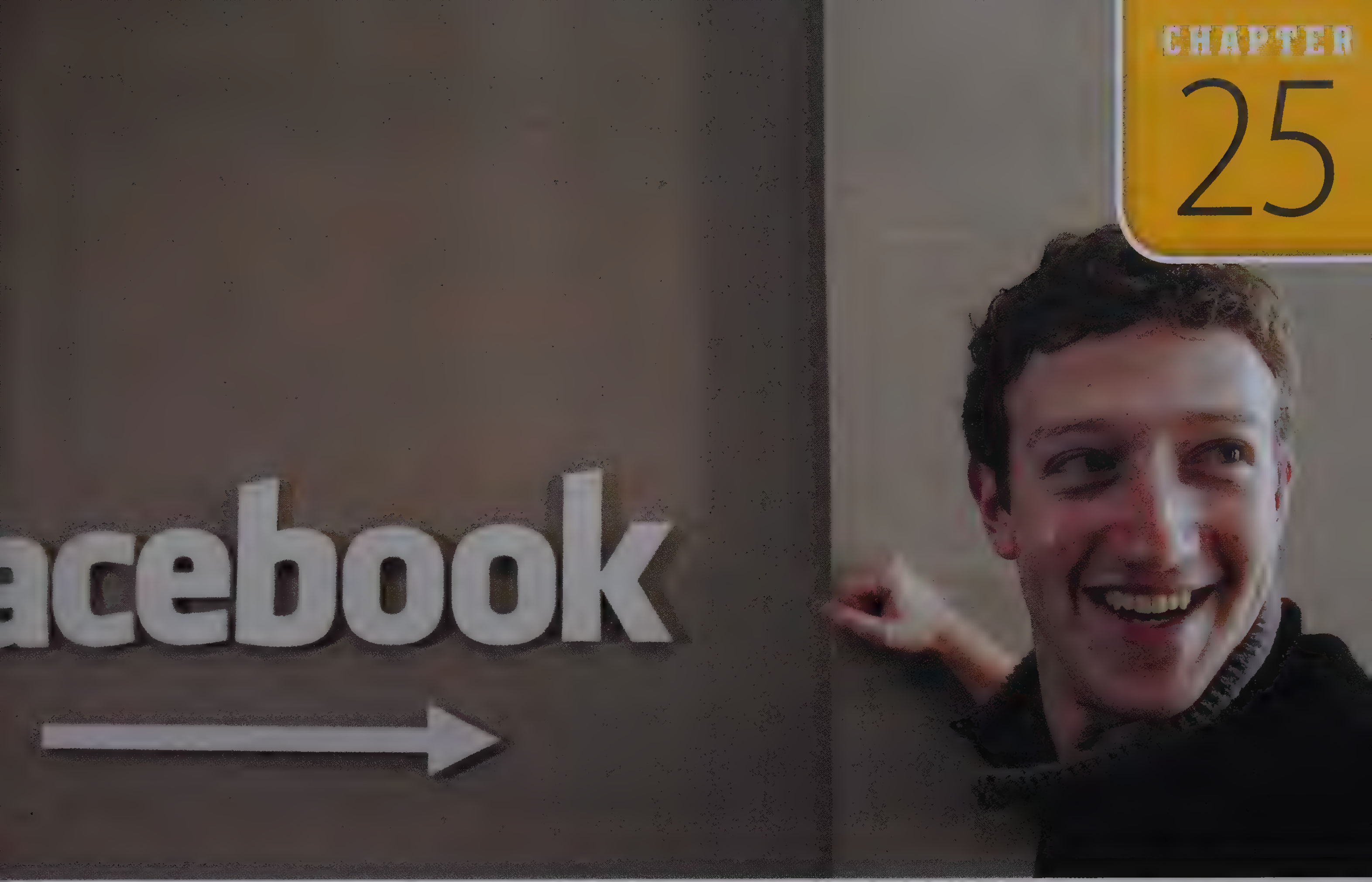
b. Prepare a divisional income statement for UniCast Cable Company for the year ended December 31, 2012.

c. When you have completed the statement, perform a "save as," replacing the entire file name with the following:

SA24-3_2e[your first name initial]_[your last name]

CHAPTER

25



oto/Paul Sakuma

Differential Analysis, Product Pricing, and Activity-Based Costing

Facebook

Many of the decisions that you make depend on comparing the estimated costs of alternatives. The payoff from such comparisons is described in the following report from a University of Michigan study.

> *Richard Nisbett and two colleagues quizzed Michigan faculty members and university seniors on such questions as how often they walk out on a bad movie, refuse to finish a bad meal, start over on a weak term paper, or abandon a research project that no longer looks promising. They believe that people who cut their losses this way are following sound economic rules: calculating the net benefits of alternative courses of action, writing off past costs that can't be recovered, and weighing the opportunity to use future time and effort more profitably elsewhere.*
>
> *Among students, those who have learned to use cost-benefit analysis frequently are apt to have far better grades than their Scholastic Aptitude Test scores would have predicted. Again, the more economics courses the students have, the more likely they are to apply cost-benefit analysis outside the classroom.*
>
> *Dr. Nisbett concedes that for many Americans, cost-benefit rules often appear to conflict with such traditional principles as "never give up" and "waste not, want not."*

Managers must also evaluate the costs and benefits of alternative actions. **Facebook**, the largest social networking site in the world, was cofounded by 26-year-old Mark Zuckerberg in 2004. Since then, it has grown to over 350 million users and made Zuckerberg a multibillionaire.

Facebook has plans to grow to over 1 billion users worldwide. Such growth involves decisions about where to expand. For example, expanding the site to new languages and countries involves software programming, marketing, and computer hardware costs. The benefits include adding new users to Facebook.

Analysis of the benefits and costs might lead Facebook to expand in some languages before others. For example, such an analysis might lead Facebook to expand in Spanish before it expands in Tok Pisin (language of Papua New Guinea).

In this chapter, differential analysis, which reports the effects of decisions on total revenues and costs, is discussed. Practical approaches to setting product prices are also described and illustrated. Finally, how production bottlenecks and activity-based costing influence pricing and other decisions are also discussed.

Source: Alan L. Otten, "Economic Perspective Produces Steady Yields," from People Patterns, *The Wall Street Journal*, March 31,1992, p. B1.

Learning Objectives

After studying this chapter, you should be able to:	Example Exercises	Page
OBJ. 1 Prepare differential analysis reports for a variety of managerial decisions.		
Differential Analysis		
Lease or Sell	EE 25-1	1161
Discontinue a Segment or Product	EE 25-2	1163
Make or Buy	EE 25-3	1165
Replace Equipment	EE 25-4	1166
Process or Sell	EE 25-5	1168
Accept Business at a Special Price	EE 25-6	1169
OBJ. 2 Determine the selling price of a product, using the product cost concept.		
Setting Normal Product Selling Prices		
Product Cost Concept	EE 25-7	1172
Target Costing		
OBJ. 3 Compute the relative profitability of products in bottleneck production processes.		
Production Bottlenecks, Pricing, and Profits		
Production Bottlenecks and Profits	EE 25-8	1175
Production Bottlenecks and Pricing		
OBJ. 4 Allocate product costs using activity-based costing.		
Activity-Based Costing Method		
Estimated Activity Costs		
Activity Rates	EE 25-9	1179
Overhead Allocation	EE 25-9	1179
Dangers of Product Cost Distortion		

At a Glance 25 Page 1184

OBJ. 1 Prepare differential analysis reports for a variety of managerial decisions.

Differential Analysis

Managerial decision making involves choosing between alternative courses of action. Although the managerial decision-making process varies by the type of decision, it normally involves the following steps:

Step 1. Identify the objective of the decision, which is normally maximizing income.

Step 2. Identify alternative courses of action.

Step 3. Gather information and perform a differential analysis.

Step 4. Make a decision.

Step 5. Review, analyze, and assess the results of the decision.

To illustrate, assume Bryant Restaurants, Inc., is deciding whether to replace some of its customer seating (tables) with a salad bar. The differential analysis decision-making process is as follows:

Step 1. Bryant Restaurants' objective is to increase its income.

Step 2. The alternative courses of action are:

1. Use floor space for existing tables.
2. Replace the tables with a salad bar.

Step 3. The following relevant data have been gathered:

	Tables (Alternative 1)	Salad Bar (Alternative 2)
Revenues	$100,000	$120,000
Costs	60,000	65,000
Income (loss)	$ 40,000	$ 55,000

The preceding information is used to perform differential analysis. **Differential analysis**, sometimes called *incremental analysis*, analyzes differential revenues and

costs in order to determine the differential impact on income of two alternative courses of action.

Differential revenue is the amount of increase or decrease in revenue that is expected from a course of action compared to an alternative. **Differential cost** is the amount of increase or decrease in cost that is expected from a course of action as compared to an alternative. **Differential income (loss)** is the difference between the differential revenue and differential costs. Differential income indicates that a decision is expected to increase income, while a differential loss indicates the decision is expected to decrease income.

To illustrate, the differential analysis as of July 11, 2012, for Bryant Restaurants is shown below.

EXHIBIT 1

Differential Analysis—Bryant Restaurants

Differential Analysis
Tables (Alternative 1) or Salad Bar (Alternative 2)
July 11, 2012

	Tables (Alternative 1)	Salad Bar (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues	$100,000	$120,000	$20,000
Costs	–60,000	–65,000	–5,000
Income (loss)	$ 40,000	$ 55,000	$15,000

The differential analysis is prepared in three columns where positive amounts indicate the effect is to increase income and negative amounts indicate the effect is to decrease income. The first column is the revenues, costs, and income for maintaining floor space for tables (Alternative 1). The second column is the revenues, costs, and income for using that floor space for a salad bar (Alternative 2). The third column is the difference between the revenue, costs, and income of one alternative over the other.

In Exhibit 1, the salad bar is being considered over retaining the existing tables. Thus, Column 3 in Exhibit 1 is expressed in terms of Alternative 2 (salad bar) over Alternative 1 (tables).

In Exhibit 1, the differential revenue of a salad bar over tables is $20,000 ($120,000 – $100,000). Since the increased revenue would increase income, it is entered as a positive $20,000 in the Differential Effect on Income column. The differential cost of a salad bar over tables is $5,000 ($65,000 – $60,000). Since the increased costs will decrease income, it is entered as a negative $5,000 in the Differential Effect on Income column.

The differential income (loss) of a salad bar over tables of $15,000 is determined by subtracting the differential costs from the differential revenues in the Differential Effect on Income column. Thus, installing a salad bar increases income by $15,000.

The preceding differential revenue, costs, and income can also be determined using the following formulas:

Differential Revenue = Revenue (Alt. 2) – Revenue (Alt. 1)
Differential Revenue = $120,000 – $100,000 = $20,000

Differential Costs = Costs (Alt. 2) – Costs (Alt. 1)
Differential Costs = –$65,000 – (–$60,000) = –$5,000

Differential Income (Loss) = Income (Alt. 2) – Income (Alt. 1)
Differential Income (Loss) = $55,000 – $40,000 = $15,000

Step 4. Based upon the differential analysis report shown in Exhibit 1, Bryant Restaurants should decide to replace some of its tables with a salad bar. Doing so will increase its income by $15,000.

Step 5. Over time, Bryant Restaurants' decision should be reviewed based upon actual revenues and costs. If the actual revenues and costs differ significantly from those gathered in Step 3, another differential analysis might be necessary to verify that the correct decision was made.

In this chapter, differential analysis is illustrated for the following common decisions:

1. Leasing or selling equipment
2. Discontinuing an unprofitable segment
3. Manufacturing or purchasing a needed part
4. Replacing fixed assets
5. Selling a product or processing further
6. Accepting additional business at a special price

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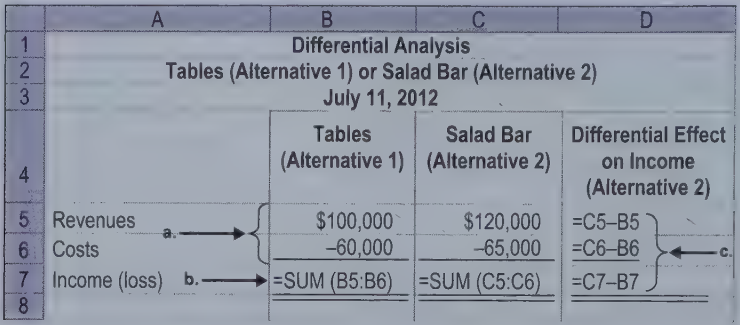
Differential analysis can be performed using spreadsheet software. The spreadsheet solution for Bryant Restaurants is as follows:



	A	B	C	D
1	Differential Analysis			
2	Tables (Alternative 1) or Salad Bar (Alternative 2)			
3	July 11, 2012			
4		Tables (Alternative 1)	Salad Bar (Alternative 2)	Differential Effect on Income (Alternative 2)
5	Revenues	$100,000	$120,000	=C5–B5
6	Costs	–60,000	–65,000	=C6–B6
7	Income (loss)	=SUM (B5:B6)	=SUM (C5:C6)	=C7–B7
8				

The formulas for the output space would be developed as follows:

a. Enter in cells B5:C6 the revenues and costs for both alternatives. Enter revenues as a plus and expenses as a minus.
b. Enter in cell B7 the sum function, =SUM(B5:B6). Copy this formula to C7.
c. Enter in cell D5 the formula for the difference between the revenues for the two alternatives, as Alternative 2 minus Alternative 1, or =C5–B5. Copy this formula to D6 and D7.

All of the differential analyses illustrated in this text can be solved with a spreadsheet using this general framework. However, it is important to remember that revenues must be entered as a plus and expenses as a minus for these formulas to provide a correct solution.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Lease or Sell

Management may lease or sell a piece of equipment that is no longer needed. This may occur when a company changes its manufacturing process and can no longer use the equipment in the manufacturing process. In making a decision, differential analysis can be used.

To illustrate, assume that on June 22, 2012, Marcus Company is considering leasing or disposing of the following equipment:

Cost of equipment	$200,000
Less accumulated depreciation	120,000
Book value	$ 80,000
Lease (Alternative 1):	
Total revenue for five-year lease	$160,000
Total estimated repair, insurance, and property tax expenses during life of lease	35,000
Residual value at end of fifth year of lease	0
Sell (Alternative 2):	
Sales price	$100,000
Commission on sales	6%

Exhibit 2 shows the differential analysis of whether to lease (Alternative 1) or sell (Alternative 2) the equipment.

EXHIBIT 2

Differential Analysis—Lease or Sell Equipment

Differential Analysis
Lease Equipment (Alternative 1) or Sell Equipment (Alternative 2)
June 22, 2012

	Lease Equipment (Alternative 1)	Sell Equipment (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues	$160,000	$100,000	–$60,000
Costs	–35,000	–6,000	29,000
Income (loss)	$125,000	$ 94,000	–$31,000

If the equipment is sold, differential revenues will decrease by $60,000, differential costs will decrease by $29,000, and the differential effect on income is a decrease of $31,000. Thus, the decision should be to lease the equipment.

Exhibit 2 includes only the differential revenues and differential costs associated with the lease-or-sell decision. The $80,000 book value ($200,000 – $120,000) of the equipment is a *sunk* cost and is not considered in the differential analysis. **Sunk costs** are costs that have been incurred in the past, cannot be recouped, and are not relevant to future decisions. That is, the $80,000 is not affected regardless of which decision is made. For example, if the $80,000 were included in Exhibit 2, the costs for each alternative would both increase by $80,000, but the differential effect on income of –$31,000 would remain unchanged.

Have you ever walked out on a bad movie? The cost of the ticket is a sunk cost and, thus, irrelevant to the decision to walk out early.

To simplify, the following factors were not considered in Exhibit 2:

1. Differential revenue from investing funds
2. Differential income tax

Differential revenue, such as interest revenue, could arise from investing the cash created by the two alternatives. Differential income tax could also arise from differences in income. These factors are discussed in Chapter 26.

Example Exercise 25-1 Lease or Sell

OBJ 1

Casper Company owns office space with a cost of $100,000 and accumulated depreciation of $30,000 that can be sold for $150,000, less a 6% broker commission. Alternatively, the office space can be leased by Casper Company for 10 years for a total of $170,000, at the end of which there is no residual value. In addition, repair, insurance, and property tax that would be incurred by Casper Company on the rented office space would total $24,000 over the 10 years. Prepare a differential analysis on May 30, 2012, as to whether Casper Company should lease (Alternative 1) or sell (Alternative 2) the office space.

Follow My Example 25-1

Differential Analysis
Lease Office Space (Alternative 1) or Sell Office Space (Alternative 2)
May 30, 2012

	Lease Office Space (Alternative 1)	Sell Office Space (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues	$170,000	$150,000	–$20,000
Costs	–24,000	–9,000*	15,000
Income (loss)	$146,000	$141,000	–$ 5,000

*$150,000 × 6%

Casper Company should lease the office space.

Practice Exercises: **PE 25-1A, PE 25-1B**

Discontinue a Segment or Product

A product, department, branch, territory, or other segment of a business may be generating losses. As a result, management may consider discontinuing (eliminating) the product or segment. In such cases, it may be erroneously assumed that the total company income will increase by eliminating the operating loss.

Discontinuing the product or segment usually eliminates all of the product's or segment's variable costs. Such costs include direct materials, direct labor, variable factory overhead, and sales commissions. However, fixed costs such as depreciation, insurance, and property taxes may not be eliminated. Thus, it is possible for total company income to decrease rather than increase if the unprofitable product or segment is discontinued.

To illustrate, the income statement for Battle Creek Cereal Co. is shown in Exhibit 3. As shown in Exhibit 3, Bran Flakes incurred an operating loss of $11,000. Because Bran Flakes has incurred annual losses for several years, management is considering discontinuing it.

EXHIBIT 3

Income (Loss) by Product

Battle Creek Cereal Co.
Condensed Income Statement
For the Year Ended August 31, 2012

	Corn Flakes	Toasted Oats	Bran Flakes	Total Company
Sales	$500,000	$400,000	$100,000	$1,000,000
Cost of goods sold:				
Variable costs	$220,000	$200,000	$ 60,000	$ 480,000
Fixed costs	120,000	80,000	20,000	220,000
Total cost of goods sold	$340,000	$280,000	$ 80,000	$ 700,000
Gross profit	$160,000	$120,000	$ 20,000	$ 300,000
Operating expenses:				
Variable expenses	$ 95,000	$ 60,000	$ 25,000	$ 180,000
Fixed expenses	25,000	20,000	6,000	51,000
Total operating expenses	$120,000	$ 80,000	$ 31,000	$ 231,000
Income (loss) from operations	$ 40,000	$ 40,000	$ (11,000)	$ 69,000

If Bran Flakes is discontinued, what would be the total annual operating income of Battle Creek Cereal? The first impression is that total annual operating income would be $80,000, as shown below.

	Corn Flakes	Toasted Oats	Total Company
Income from operations	$40,000	$40,000	$80,000

However, the differential analysis dated September 29, 2012, in Exhibit 4 indicates that discontinuing Bran Flakes (Alternative 2) actually decreases operating income by

EXHIBIT 4

Differential Analysis—Continue or Discontinue Bran Flakes

Differential Analysis
Continue Bran Flakes (Alternative 1) or Discontinue Bran Flakes (Alternative 2)
September 29, 2012

	Continue Bran Flakes (Alternative 1)	Discontinue Bran Flakes (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues	$100,000	$ 0	–$100,000
Costs:			
Variable	–$ 85,000	$ 0	$ 85,000
Fixed	–26,000	–26,000	0
Total costs	–$111,000	–$26,000	$ 85,000
Income (loss)	–$ 11,000	–$26,000	–$ 15,000

EXHIBIT 5

Income Statement Analysis

Proposal to Discontinue Bran Flakes
September 29, 2012

	Bran Flakes, Toasted Oats, and Corn Flakes	Discontinue Bran Flakes*	Toasted Oats and Corn Flakes
Sales	$1,000,000	$100,000	$900,000
Cost of goods sold:			
Variable costs	$ 480,000	$ 60,000	$420,000
Fixed costs	220,000	0	220,000
Total cost of goods sold	$ 700,000	$ 60,000	$640,000
Gross profit	$ 300,000	$ 40,000	$260,000
Operating expenses:			
Variable expenses	$ 180,000	$ 25,000	$155,000
Fixed expenses	51,000	0	51,000
Total operating expenses	$ 231,000	$ 25,000	$206,000
Income (loss) from operations	**$ 69,000**	**$ 15,000**	**$ 54,000**

*Fixed costs are assumed to remain unchanged with the discontinuance of Bran Flakes.

$15,000. This is because discontinuing Bran Flakes has no effect on fixed costs and expenses. This is confirmed by the income statement analysis in Exhibit 5, which indicates that income from operations would decrease from $69,000 to $54,000 if Bran Flakes were discontinued.

Exhibits 4 and 5 consider only the short-term (one-year) effects of discontinuing Bran Flakes. When discontinuing a product or segment, long-term effects should also be considered. For example, discontinuing Bran Flakes could decrease sales of other products. This might be the case if customers upset with the discontinuance of Bran Flakes quit buying other products from the company. Finally, employee morale and productivity might suffer if employees have to be laid off or relocated.

Example Exercise 25-2 Discontinue a Segment

Product K has revenue of $65,000, variable cost of goods sold of $50,000, variable selling expenses of $12,000, and fixed costs of $25,000, creating a loss from operations of $22,000. Prepare a differential analysis dated February 22, 2012, to determine if Product K should be continued (Alternative 1) or discontinued (Alternative 2).

Follow My Example 25-2

Differential Analysis
Continue K (Alternative 1) or Discontinue K (Alternative 2)
February 22, 2012

	Continue Product K (Alternative 1)	Discontinue Product K (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues	$65,000	$ 0	–$65,000
Costs:			
Variable	–$62,000*	$ 0	$62,000
Fixed	–25,000	–25,000	0
Total costs	–$87,000	–$25,000	$62,000
Income (loss)	–$22,000	–$25,000	–$ 3,000

*$50,000 + $12,000

Product K should be continued.

Practice Exercises: **PE 25-2A, PE 25-2B**

Make or Buy

Companies often manufacture products made up of components that are assembled into a final product. For example, an automobile manufacturer assembles tires, radios, motors, interior seats, transmissions, and other parts into a finished automobile. In such cases, the manufacturer must decide whether to make a part or purchase it from a supplier.

Differential analysis can be used to decide whether to make or buy a part. The analysis is similar whether management is considering making a part that is currently being purchased or purchasing a part that is currently being made.

To illustrate, assume that an automobile manufacturer has been purchasing instrument panels for $240 a unit. The factory is currently operating at 80% of capacity, and no major increase in production is expected in the near future. The cost per unit of manufacturing an instrument panel internally is estimated on February 15, 2012, as follows:

Direct materials	$ 80
Direct labor	80
Variable factory overhead	52
Fixed factory overhead	68
Total cost per unit	$280

If the make price of $280 is simply compared with the buy price of $240, the decision is to buy the instrument panel. However, if unused capacity could be used in manufacturing the part, there would be no increase in the total fixed factory overhead costs. Thus, only the variable factory overhead costs would be incurred.

The differential analysis for this make (Alternative 1) or buy (Alternative 2) decision is shown in Exhibit 6. The fixed factory overhead cannot be eliminated by purchasing the panels, thus both alternatives include the fixed factory overhead. The differential analysis indicates there is a loss of $28 per unit from buying the instrument panels. Thus, the instrument panels should be manufactured.

EXHIBIT 6

Differential Analysis—Make or Buy Instrument Panels

Differential Analysis
Make Panels (Alternative 1) or Buy Panels (Alternative 2)
February 15, 2012

	Make Panels (Alternative 1)	Buy Panels (Alternative 2)	Differential Effect on Income (Alternative 2)
Costs:			
Purchase price	$ 0	–$240	–$240
Direct materials	–80	0	80
Direct labor	–80	0	80
Variable factory overhead	–52	0	52
Fixed factory overhead	–68	–68	0
Income (loss)	–$280	–$308	–$ 28

Other factors should also be considered in the analysis. For example, productive capacity used to make the instrument panel would not be available for other production. The decision may also affect the future business relationship with the instrument panel supplier. For example, if the supplier provides other parts, the company's decision to make instrument panels might jeopardize the timely delivery of other parts.

Example Exercise 25-3 Make or Buy

A company manufactures a subcomponent of an assembly for $80 per unit, including fixed costs of $25 per unit. A proposal is offered to purchase the subcomponent from an outside source for $60 per unit, plus $5 per unit freight. Prepare a differential analysis dated November 2, 2012, to determine whether the company should make (Alternative 1) or buy (Alternative 2) the subcomponent.

Follow My Example 25-3

Differential Analysis
Make Subcomponent (Alternative 1) or Buy Subcomponent (Alternative 2)
November 2, 2012

	Make Subcomponent (Alternative 1)	Buy Subcomponent (Alternative 2)	Differential Effect on Income (Alternative 2)
Costs:			
Purchase price	$ 0	–$60	–$60
Freight	0	–5	–5
Variable costs ($80 – $25)	–55	0	55
Fixed factory overhead	–25	–25	0
Income (loss)	–$80	–$90	–$10

The company should make the subcomponent.

Practice Exercises: PE 25-3A, PE 25-3B

Replace Equipment

The usefulness of a fixed asset may decrease before it is worn out. For example, old equipment may no longer be as efficient as new equipment.

Differential analysis can be used for decisions to replace fixed assets such as equipment and machinery. The analysis normally focuses on the costs of continuing to use the old equipment versus replacing the equipment. The book value of the old equipment is a sunk cost and, thus, is irrelevant.

To illustrate, assume that on November 28, 2012, a business is considering replacing the following machine:

Old Machine	
Book value	$100,000
Estimated annual variable manufacturing costs	225,000
Estimated selling price	25,000
Estimated remaining useful life	5 years
New Machine	
Cost of new machine	$250,000
Estimated annual variable manufacturing costs	150,000
Estimated residual value	0
Estimated useful life	5 years

Differential effect on income, $30,000 per year

The differential analysis for whether to continue with the old machine (Alternative 1) or replace the old machine with a new machine (Alternative 2) is shown in Exhibit 7.

As shown in Exhibit 7, there is five-year differential effect on income of $150,000 (or $30,000 per year) from replacing the machine. Thus, the decision should be to purchase the new machine and sell the old machine.

Other factors are often important in equipment replacement decisions. For example, differences between the remaining useful life of the old equipment and the estimated life of the new equipment could exist. In addition, the new equipment might improve the overall quality of the product and, thus, increase sales.

EXHIBIT 7

Differential Analysis—Continue with or Replace Old Equipment

Differential Analysis
Continue with Old Machine (Alternative 1) or Replace Old Machine (Alternative 2)
November 28, 2012

	Continue with Old Machine (Alternative 1)	Replace Old Machine (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues:			
Proceeds from sale of old machine	$ 0	$ 25,000	$ 25,000
Costs:			
Purchase price	$ 0	–$ 250,000	–$250,000
Annual variable costs (5 years)	–1,125,000	–750,000	375,000
Total costs	–$1,125,000	–$1,000,000	$125,000
Income (loss)	–$1,125,000	–$ 975,000	$150,000

The time value of money and other uses for the cash needed to purchase the new equipment could also affect the decision to replace equipment.[1] The revenue that is forgone from an alternative use of an asset, such as cash, is called an **opportunity cost**. Although the opportunity cost is not recorded in the accounting records, it is useful in analyzing alternative courses of action.

To illustrate, assume that in the preceding illustration the cash outlay of $250,000 for the new machine, less the $25,000 proceeds from the sale of the old machine, could be invested to yield a 15% return. Thus, the annual opportunity cost related to the purchase of the new machine is $33,750 (15% × $225,000). Since the opportunity cost of $33,750 exceeds the annual cost savings of $30,000, the old machine should not be replaced.

Example Exercise 25-4 Replace Equipment

OBJ 1

A machine with a book value of $32,000 has an estimated four-year life. A proposal is offered to sell the old machine for $10,000 and replace it with a new machine at a cost of $45,000. The new machine has a four-year life with no residual value. The new machine would reduce annual direct labor costs from $33,000 to $22,000. Prepare a differential analysis dated October 7, 2012, on whether to continue with the old machine (Alternative 1) or replace the old machine (Alternative 2).

Follow My Example 25-4

Differential Analysis
Continue with Old Machine (Alternative 1) or Replace Old Machine (Alternative 2)
October 7, 2012

	Continue with Old Machine (Alternative 1)	Replace Old Machine (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues:			
Proceeds from sale of old machine	$ 0	$ 10,000	$10,000
Costs:			
Purchase price	$ 0	–$ 45,000	–$45,000
Direct labor (4 years)	–132,000*	–88,000**	44,000
Total costs	–$132,000	–$133,000	–$ 1,000
Total income (loss)	–$132,000	–$123,000	$ 9,000

*$33,000 × 4 years
**$22,000 × 4 years

The old machine should be sold and replaced with the new machine.

Practice Exercises: **PE 25-4A, PE 25-4B**

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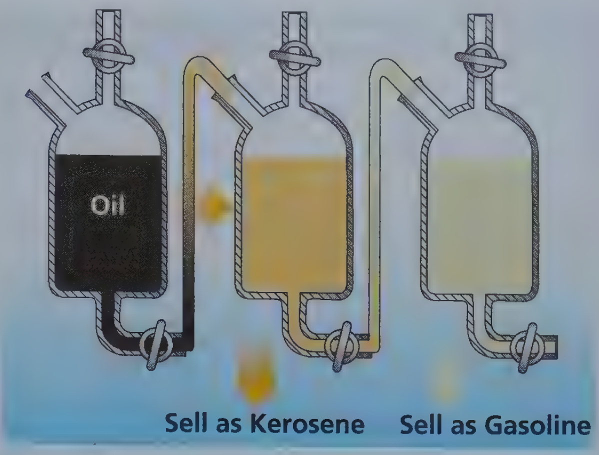
[1] The time value of money in purchasing equipment (capital assets) is discussed in Chapter 26.

Process or Sell



During manufacturing, a product normally progresses through various stages or processes. In some cases, a product can be sold at an intermediate stage of production, or it can be processed further and then sold.

Differential analysis can be used to decide whether to sell a product at an intermediate stage or to process it further. In doing so, the differential revenues and costs from further processing are compared. The costs of producing the intermediate product do not change, regardless of whether the intermediate product is sold or processed further.

To illustrate, assume that a business produces kerosene as follows:

Kerosene:	
Batch size	4,000 gallons
Cost of producing kerosene	$2,400 per batch
Selling price	$2.50 per gallon

The kerosene can be processed further to yield gasoline as follows:

Gasoline:	
Input batch size	4,000 gallons
Less evaporation (20%)	800 (4,000 × 20%)
Output batch size	3,200 gallons
Cost of producing gasoline	$3,050 per batch
Selling price	$3.50 per gallon

Exhibit 8 shows the differential analysis dated October 1, 2012, for whether to sell kerosene (Alternative 1) or process it further into gasoline (Alternative 2).

EXHIBIT 8

Differential Analysis—Sell Kerosene or Process Further into Gasoline

Differential Analysis
Sell Kerosene (Alternative 1) or Process Further into Gasoline (Alternative 2)
October 1, 2012

	Sell Kerosene (Alternative 1)	Process Further into Gasoline (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues	$10,000*	$11,200**	$1,200
Costs	–2,400	–3,050	–650
Income (loss)	$ 7,600	$ 8,150	$ 550

*4,000 gallons × $2.50
**(4,000 gallons – 800 gallons) × $3.50

As shown in Exhibit 8, there is additional income from further processing the kerosene into gasoline of $550 per batch. Therefore, the decision should be to process the kerosene further into gasoline.

Example Exercise 25-5 Process or Sell

OBJ 1

Product T is produced for $2.50 per gallon. Product T can be sold without additional processing for $3.50 per gallon, or processed further into Product V at an additional total cost of $0.70 per gallon. Product V can be sold for $4.00 per gallon. Prepare a differential analysis dated April 8, 2012, on whether to sell Product T (Alternative 1) or process it further into Product V (Alternative 2).

Follow My Example 25-5

Differential Analysis
Sell Product T (Alternative 1) or Process Further into Product V (Alternative 2)
April 8, 2012

	Sell Product T (Alternative 1)	Process Further into Product V (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues, per unit	$3.50	$4.00	$0.50
Costs, per unit	–2.50	–3.20*	–0.70
Income (loss), per unit	$1.00	$0.80	–$0.20

*$2.50 + $0.70

The decision should be to sell Product T.

Practice Exercises: **PE 25-5A, PE 25-5B**

Accept Business at a Special Price

A company may be offered the opportunity to sell its products at prices other than normal prices. For example, an exporter may offer to sell a company's products overseas at special discount prices.

Differential analysis can be used to decide whether to accept additional business at a special price. The differential revenue from accepting the additional business is compared to the differential costs of producing and delivering the product to the customer.

The differential costs of accepting additional business depend on whether the company is operating at full capacity.

1. If the company is *operating at full capacity*, any additional production increases fixed and variable manufacturing costs. Selling and administrative expenses may also increase because of the additional business.
2. If the company is *operating below full capacity*, any additional production does not increase fixed manufacturing costs. In this case, the differential costs of the additional production are the variable manufacturing costs. Selling and administrative expenses may also increase because of the additional business.

To illustrate, assume that B-Ball Inc. manufactures basketballs as follows:

Monthly productive capacity	12,500 basketballs
Current monthly sales	10,000 basketballs
Normal (domestic) selling price	$30.00 per basketball
Manufacturing costs:	
Variable costs	$12.50 per basketball
Fixed costs	7.50
Total	$20.00 per basketball

Order for 5,000 basketballs at $18 each

On March 10, 2012, B-Ball Inc. has received an offer from an exporter for 5,000 basketballs at $18 each. Production can be spread over three months without interfering with normal production or incurring overtime costs. Pricing policies in the domestic market will not be affected.

Comparing the special offer sales price of $18 with the manufacturing cost of $20 per basketball indicates that the offer should be rejected. However, as shown in Exhibit 9, a differential analysis on whether to reject the order (Alternative 1) or accept the order (Alternative 2) shows that the special order should be accepted. This is because the fixed costs are not affected by the decision, and are thus, omitted from the analysis.

EXHIBIT 9

Differential Analysis—Accept Business at a Special Price

Differential Analysis
Reject Order (Alternative 1) or Accept Order (Alternative 2)
March 10, 2012

	Reject Order (Alternative 1)	Accept Order (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues	$0	$90,000*	$90,000
Costs:			
Variable manufacturing costs	0	–62,500**	–62,500
Income (loss)	$0	$27,500	$27,500

*5,000 units × $18
**5,000 units × $12.50 variable cost per unit

Proposals to sell products at special prices often require additional considerations. For example, special prices in one geographic area may result in price reductions in other areas with the result that total company sales revenues decrease. Manufacturers must also conform to the Robinson-Patman Act, which prohibits price discrimination within the United States unless price differences can be justified by different costs.

BusinessConnection

NAME YOUR OWN PRICE

Priceline.com Inc. was founded in the late 1990s and has become a successful survivor of the Internet revolution. Priceline developed the "name your price®" bidding format, which can provide price discounts of up to 60% for travel services. How does it work? For hotel services, Priceline has arrangements with hotels to provide discounted rooms. These rooms are sold to customers based on a name-your-own-price bid. Customers must identify a zone (approximate location for the hotel), quality level, and dates; then submit a price bid for a hotel. If you place a bid that is rejected, you can try again after 24 hours. If your bid is accepted, you are committed to pay for the hotel that has been selected according to your criteria. Why do hotels provide rooms at such a large discount? The hotels are accepting business at a special price. If the hotel has unused rooms, the variable cost of an incremental guest is low relative to the fixed cost of the room. Thus, during low occupancy times, any price above the variable cost of providing the room can add to the profitability of the hotel.

Example Exercise 25-6 Accept Business at Special Price

OBJ. 1

Product D is normally sold for $4.40 per unit. A special price of $3.60 is offered for the export market. The variable production cost is $3.00 per unit. An additional export tariff of 10% of revenue must be paid for all export products. Assume there is sufficient capacity for the special order. Prepare a differential analysis dated January 14, 2012, on whether to reject (Alternative 1) or accept (Alternative 2) the special order.

(Continued)

Follow My Example 25-6

Differential Analysis
Reject Order (Alternative 1) or Accept Order (Alternative 2)
January 14, 2012

	Reject Order (Alternative 1)	Accept Order (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues, per unit	$0	$3.60	$3.60
Costs:			
Variable manufacturing costs, per unit	$0	–$3.00	–$3.00
Export tariff, per unit	0	–0.36*	–0.36
Total costs	$0	–$3.36	–$3.36
Income (loss), per unit	$0	$0.24	$0.24

*$3.60 × 10%

The special order should be accepted.

Practice Exercises: **PE 25-6A, PE 25-6B**

Setting Normal Product Selling Prices

Obj 2 Determine the selling price of a product, using the product cost concept.

The *normal* selling price is the target selling price to be achieved in the long term. The normal selling price must be set high enough to cover all costs and expenses (fixed and variable) and provide a reasonable profit. Otherwise, the business will not survive.

In contrast, in deciding whether to accept additional business at a special price, only differential costs are considered. Any price above the differential costs will increase profits in the short term. However, in the long term, products are sold at normal prices rather than special prices.

Hotels and motels use the demand-based concept in setting room rates. Room rates are set low during off-season travel periods (low demand) and high for peak-season travel periods (high demand) such as holidays.

Managers can use one of two market methods to determine selling price:

1. Demand-based concept
2. Competition-based concept

The demand-based concept sets the price according to the demand for the product. If there is high demand for the product, then the price is set high. Likewise, if there is a low demand for the product, then the price is set low.

The competition-based concept sets the price according to the price offered by competitors. For example, if a competitor reduces the price, then management adjusts the price to meet the competition. The market-based pricing approaches are discussed in greater detail in marketing courses.

Managers can also use one of three cost-plus methods to determine the selling price:

1. Product cost concept
2. Total cost concept
3. Variable cost concept

The product cost concept is illustrated in this section. The total cost and variable cost concepts are illustrated in the appendix to this chapter.

Integrity, Objectivity, and Ethics in Business

PRICE FIXING

Federal law prevents companies competing in similar markets from sharing cost and price information, or what is commonly termed "price fixing." For example, the Federal Trade Commission brought a suit against the major record labels and music retailers for conspiring to set CD prices at a minimum level, or MAP (minimum advertised price). In settling the suit, the major labels ceased their MAP policies and provided $143 million in cash and CDs for consumers.

Product Cost Concept

Cost-plus methods determine the normal selling price by estimating a cost amount per unit and adding a markup, as shown below.

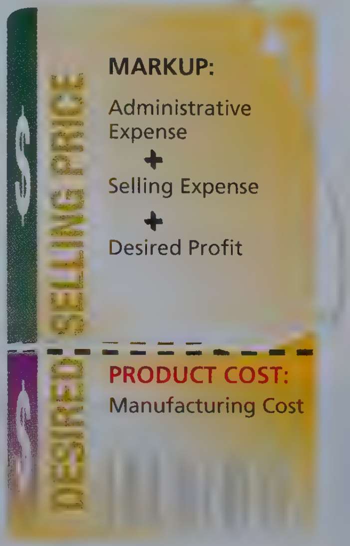
$$\text{Normal Selling Price} = \text{Cost Amount per Unit} + \text{Markup}$$

Management determines the markup based on the desired profit for the product. The markup should be sufficient to earn the desired profit plus cover any costs and expenses that are not included in the cost amount.

Under the **product cost concept**, only the costs of manufacturing the product, termed the *product costs,* are included in the cost amount per unit to which the markup is added. Estimated selling expenses, administrative expenses, and desired profit are included in the markup. The markup per unit is then computed and added to the product cost per unit to determine the normal selling price.

The product cost concept is applied using the following steps:

PRODUCT COST CONCEPT



Step 1. Estimate the total product costs as follows:

Product costs:	
Direct materials	$XXX
Direct labor	XXX
Factory overhead	XXX
Total product cost	$XXX

Step 2. Estimate the total selling and administrative expenses.

Step 3. Divide the total product cost by the number of units expected to be produced and sold to determine the total product cost per unit, as shown below.

$$\text{Product Cost per Unit} = \frac{\text{Total Product Cost}}{\text{Estimated Units Produced and Sold}}$$

Step 4. Compute the markup percentage as follows:

$$\text{Markup Percentage} = \frac{\text{Desired Profit} + \text{Total Selling and Administrative Expenses}}{\text{Total Product Cost}}$$

The numerator of the markup percentage is the desired profit plus the total selling and administrative expenses. These expenses must be included in the markup percentage, since they are not included in the cost amount to which the markup is added.

The desired profit is normally computed based on a rate of return on assets as follows:

$$\text{Desired Profit} = \text{Desired Rate of Return} \times \text{Total Assets}$$

Step 5. Determine the markup per unit by multiplying the markup percentage times the product cost per unit as follows:

$$\text{Markup per Unit} = \text{Markup Percentage} \times \text{Product Cost per Unit}$$

Step 6. Determine the normal selling price by adding the markup per unit to the product cost per unit as follows:

Product cost per unit	$XXX
Markup per unit	XXX
Normal selling price per unit	$XXX

To illustrate, assume the following data for 100,000 calculators that Digital Solutions Inc. expects to produce and sell during the current year:

Manufacturing costs:	
Direct materials ($3.00 × 100,000)	$ 300,000
Direct labor ($10.00 × 100,000)	1,000,000
Factory overhead	200,000
Total manufacturing costs	$1,500,000
Selling and administrative expenses	170,000
Total cost	$1,670,000
Total assets	$800,000
Desired rate of return	20%

The normal selling price of \$18.30 is determined under the product cost concept as follows:

Step 1. Total product cost: \$1,500,000

Step 2. Total selling and administrative expenses: \$170,000

Step 3. Total product cost per unit: \$15.00

$$\text{Total Cost per Unit} = \frac{\text{Total Product Cost}}{\text{Estimated Units Produced and Sold}} = \frac{\$1{,}500{,}000}{100{,}000 \text{ units}} = \$15.00 \text{ per unit}$$

Step 4. Markup percentage: 22%

$$\text{Desired Profit} = \text{Desired Rate of Return} \times \text{Total Assets} = 20\% \times \$800{,}000 = \$160{,}000$$

$$\text{Markup Percentage} = \frac{\text{Desired Profit} + \text{Total Selling and Administrative Expenses}}{\text{Total Product Cost}}$$

$$\text{Markup Percentage} = \frac{\$160{,}000 + \$170{,}000}{\$1{,}500{,}000} = \frac{\$330{,}000}{\$1{,}500{,}000} = 22\%$$

Step 5. Markup per unit: \$3.30

$$\text{Markup per Unit} = \text{Markup Percentage} \times \text{Product Cost per Unit}$$
$$\text{Markup per Unit} = 22\% \times \$15.00 = \$3.30 \text{ per unit}$$

Step 6. Normal selling price: \$18.30

Total product cost per unit	\$15.00
Markup per unit	3.30
Normal selling price per unit	\$18.30

Product cost estimates, rather than actual costs, may be used in computing the markup. Management should be careful, however, when using estimated or standard

Example Exercise 25-7 Product Cost Markup Percentage

2

Apex Corporation produces and sells Product Z at a total cost of \$30 per unit, of which \$20 is product cost and \$10 is selling and administrative expenses. In addition, the total cost of \$30 is made up of \$18 variable cost and \$12 fixed cost. The desired profit is \$3 per unit. Determine the markup percentage on product cost.

Follow My Example 25-7

$$\text{Markup percentage on product cost: } \frac{\$3 + \$10}{\$20} = 65.0\%$$

Practice Exercises: **PE 25-7A, PE 25-7B**

BusinessConnection

iPAD PRODUCT COST

Market research firm iSuppli opened up an Apple iPad® to estimate its total variable manufacturing cost. After listing and analyzing all of the components, it determined that the iPad has a total variable production cost of \$259.60. This is about 52% of the retail price, which is estimated to be in line with other Apple products. Of the \$259.60, much of the costs went toward making the product easy and appealing to use. More than 40% of the iPad's cost is devoted to powering the touch screen interface, including the screen itself from LG Display Co., the touch-sensitive glass overlay from Wintek Corp., and the silicon chips from Texas Instruments that power the screen interactions. The unique aluminum casing is estimated to contribute \$10.50 to the cost. The main processor chip is likely designed by PA Semi, an Apple acquisition, with an estimated production cost of \$26.80 by Samsung. As illustrated with the iPad, sophisticated products require extensive collaboration across many different companies to provide exciting product features at a reasonable cost.

Source: A. Hesseldahl, "Apple iPad Components May Cost as Little as \$260, iSuppli Says," *Bloomberg Business Week*, April 7, 2010.

costs in applying the cost-plus approach. Specifically, estimates should be based on normal (attainable) operating levels and not theoretical (ideal) levels of performance. In product pricing, the use of estimates based on ideal operating performance could lead to setting product prices too low.

Target Costing

Target costing is a method of setting prices that combines market-based pricing with a cost-reduction emphasis. Under target costing, a future selling price is anticipated, using the demand-based or the competition-based concepts. The target cost is then determined by subtracting a desired profit from the expected selling price, as shown below.

Target Cost = Expected Selling Price – Desired Profit

Target costing tries to reduce costs as shown in Exhibit 10. The bar at the left in Exhibit 10 shows the actual cost and profit that can be earned during the current period. The bar at the right shows that the market price is expected to decline in the future. The target cost is estimated as the difference between the expected market price and the desired profit.

The target cost is normally less than the current cost. Thus, managers must try to reduce costs from the design and manufacture of the product. The planned cost reduction is sometimes referred to as the cost "drift." Costs can be reduced in a variety of ways such as the following:

1. Simplifying the design
2. Reducing the cost of direct materials
3. Reducing the direct labor costs
4. Eliminating waste

Target costing is especially useful in highly competitive markets such as the market for personal computers. Such markets require continual product cost reductions to remain competitive.

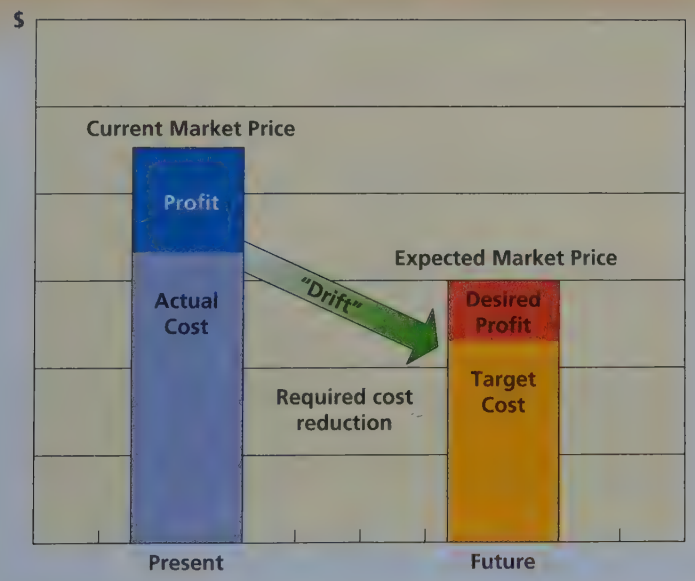


EXHIBIT 10

Target Cost Concept

Production Bottlenecks, Pricing, and Profits

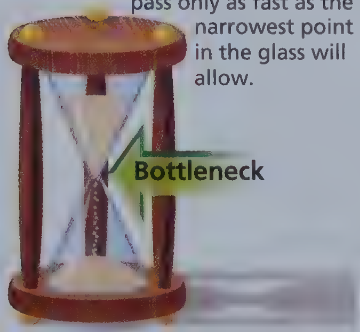
OBJ. 3 Compute the relative profitability of products in bottleneck production processes.

A **production bottleneck** (or *constraint*) is a point in the manufacturing process where the demand for the company's product exceeds the ability to produce the product. The **theory of constraints (TOC)** is a manufacturing strategy that focuses on reducing the influence of bottlenecks on production processes.

Production Bottlenecks and Profits

When a company has a production bottleneck in its production process, it should attempt to maximize its profits, subject to the production bottleneck. In doing so, the unit contribution margin of each product per production bottleneck constraint is used.

To illustrate, assume that PrideCraft Tool Company makes three types of wrenches: small, medium, and large. All three products are processed through a heat treatment operation, which hardens the steel tools. PrideCraft Tool's heat treatment process is operating at full capacity and is a production bottleneck. The product unit contribution margin and the number of hours of heat treatment used by each type of wrench are as follows:



The sand in the hourglass can pass only as fast as the narrowest point in the glass will allow.

	Small Wrench	Medium Wrench	Large Wrench
Unit selling price	$130	$140	$160
Unit variable cost	40	40	40
Unit contribution margin	$ 90	$100	$120
Heat treatment hours per unit	1 hr.	4 hrs.	8 hrs.

The large wrench appears to be the most profitable product because its unit contribution margin of $120 is the greatest. However, the unit contribution margin can be misleading in a production bottleneck operation.

In a production bottleneck operation, the best measure of profitability is the unit contribution margin per production bottleneck constraint. For PrideCraft Tool, the production bottleneck constraint is heat treatment process hours. Therefore, the unit contribution margin per bottleneck constraint is expressed as follows:

$$\text{Unit Contribution Margin per Production Bottleneck Hour} = \frac{\text{Unit Contribution Margin}}{\text{Heat Treatment Hours per Unit}}$$

The unit contribution per production bottleneck hour for each of the wrenches produced by PrideCraft Tool is computed below.

Small Wrenches

$$\text{Unit Contribution Margin per Production Bottleneck Hour} = \frac{\$90}{1\text{ hr.}} = \$90\text{ per hr.}$$

Medium Wrenches

$$\text{Unit Contribution Margin per Production Bottleneck Hour} = \frac{\$100}{4\text{ hrs.}} = \$25\text{ per hr.}$$

Large Wrenches

$$\text{Unit Contribution Margin per Production Bottleneck Hour} = \frac{\$120}{8\text{ hrs.}} = \$15\text{ per hr.}$$

The small wrench produces the highest unit contribution margin per production bottleneck hour (heat treatment) of $90 per hour. In contrast, the large wrench has the largest contribution margin per unit of $120, but has the smallest unit contribution margin per production bottleneck hour of $15 per hour. Thus, the small wrench is the most profitable product per production bottleneck hour and is the one that should be emphasized in the market.

Production Bottlenecks and Pricing

When a company has a production bottleneck, the unit contribution margin per bottleneck hour is a measure of each product's profitability. This measure can be used to adjust product prices to reflect the product's use of the bottleneck.

To illustrate, the large wrench produced by PrideCraft Tool Company uses eight bottleneck hours, but produces a contribution margin per unit of only $120. As a result, the large wrench is the least profitable of the wrenches per bottleneck hour ($15 per hour).

PrideCraft Tool Company can improve the profitability of producing large wrenches by any combination of the following:

1. Increase the selling price of the large wrenches.
2. Decrease the variable cost per unit of the large wrenches.
3. Decrease the heat treatment hours required for the large wrenches.

Example Exercise 25-8 Bottleneck Profit

OBJ. 3

Product A has a unit contribution margin of $15. Product B has a unit contribution margin of $20. Product A requires three furnace hours, while Product B requires five furnace hours. Determine the most profitable product, assuming the furnace is a constraint.

Follow My Example 25-8

	Product A	Product B
Unit contribution margin	$15	$20
Furnace hours per unit	÷3	÷ 5
Unit contribution margin per production bottleneck hour	$ 5	$ 4

Product A is the most profitable in using bottleneck resources.

Practice Exercises: **PE 25-8A, PE 25-8B**

Assume that the variable cost per unit and the heat treatment hours for the large wrench cannot be decreased. In this case, PrideCraft Tool might be able to increase the selling price of the large wrenches.

The price of the large wrench that would make it as profitable as the small wrench is determined as follows:[2]

$$\text{Unit Contribution Margin per Bottleneck Hour for Small Wrench} = \frac{\text{Revised Price of Large Wrench} - \text{Unit Variable Cost for Large Wrench}}{\text{Bottleneck Hours per Unit for Large Wrench}}$$

$$\$90 = \frac{\text{Revised Price of Large Wrench} - \$40}{8}$$

$$\$720 = \text{Revised Price of Large Wrench} - \$40$$

$$\$760 = \text{Revised Price of Large Wrench}$$

If the large wrench's price is increased to $760, it would provide the same unit contribution margin per bottleneck hour as the small wrench, as shown below.

$$\text{Unit Contribution Margin per Bottleneck Hour} = \frac{\text{Unit Contribution Margin}}{\text{Heat Treatment Hours per Unit}}$$

$$\text{Unit Contribution Margin per Bottleneck Hour} = \frac{\$760 - \$40}{8\text{ hrs.}} = \$90\text{ per hr.}$$

At a price of $760, PrideCraft Tool Company would be indifferent between producing and selling the small wrench or the large wrench. This assumes that there is unlimited demand for the products. If the market were unwilling to purchase the large wrench at a price of $760, then the company should produce and sell the small wrenches.

---

[2] Assuming that the selling price of the large wrench cannot be increased, the same approach (equation) could be used to determine the decrease in variable cost per unit or decrease in bottleneck hours that is required to make the large wrench as profitable as the small wrench.

OBJ. 4 Allocate product costs using activity-based costing.

Activity-Based Costing Method

Normal product prices can be computed from a markup on product cost, as illustrated earlier in this chapter. Product cost is the sum of direct material, direct labor, and factory overhead. In Chapter 19, factory overhead was allocated to products (jobs) using a single predetermined factory overhead rate. This rate was computed as:

$$\text{Predetermined Factory Overhead Rate} = \frac{\text{Estimated Total Factory Overhead Costs}}{\text{Estimated Activity Base}}$$

The use of a single, predetermined factory overhead rate may, however, allocate factory overhead inaccurately. In such cases, normal product prices based on product cost markup may also be inaccurate. This may occur in manufacturing operations involving more than one product. In such cases, each product may use different types of factory overhead in different ways. Under such conditions, a single factory overhead rate will distort factory overhead allocation.

Activity-based costing (ABC) identifies and traces costs and expenses to activities and then to specific products. The activity-based costing (ABC) method is an alternative approach for allocating factory overhead when there are diverse products and processes. ABC uses multiple factory overhead rates based on activities. **Activities** are the types of work, or actions, involved in a manufacturing process or service activity. For example, assembly, inspection, and engineering design are activities.

Estimated Activity Costs

ABC initially assigns estimated factory overhead costs to activities, resulting in estimated activity costs. To illustrate, assume that Ruiz Company produces snowmobiles and riding mowers. The overhead activities used in producing each product are as follows:

1. *Fabrication,* which consists of cutting metal to shape the product. This activity is machine-intensive.
2. *Assembly,* which consists of manually assembling machined pieces into a final product. This activity is labor-intensive.
3. *Setup,* which consists of changing tooling in machines in preparation for making a new product. Each production run requires a **setup**.
4. *Quality-control inspections,* which consist of inspecting the product for conformance to specifications. Inspection requires product tear down and reassembly.
5. *Engineering changes,* which consist of processing changes in design or process specifications for a product. The document that initiates changing a product or process is called an **engineering change order (ECO)**.

Ruiz Company's total estimated factory overhead of $1,600,000 is assigned to each activity as shown in Exhibit 11.

EXHIBIT 11

Estimated Activity Costs

Activity	Estimated Activity Cost
Fabrication	$ 530,000
Assembly	70,000
Setup	480,000
Quality-control inspection	312,000
Engineering changes	208,000
Total estimated activity costs	$1,600,000

Activity Rates

The estimated activity costs are allocated to products using an **activity rate**. Activity rates are determined as follows:

$$\text{Activity Rate} = \frac{\text{Estimated Activity Cost}}{\text{Estimated Activity–Base Usage}}$$

The **activity base** is a measure of physical activity for each activity. For example, the activity base for the setup activity is the number of setups. The activity-base *usage* is the number of setups estimated to be used by the operations.

As shown in Exhibit 11, the estimated activity cost for setups is $480,000. Assume the activity-base usage for the setup activity is estimated to be 120 setups. The setup activity rate is $4,000 per setup as computed below.

$$\text{Setup Activity Rate} = \frac{\$480{,}000}{\text{120 setups}} = \$4{,}000 \text{ per setup}$$

The estimated activity-base usage for each activity is shown in Exhibit 12.

EXHIBIT 12

Ruiz Company Activity-Base Usage

	Estimated Activity-Base Usage by Product		
Activity Base	**Snowmobile**	**Riding Mower**	**Total Estimated Activity-Base Usage**
Number of fabrication direct labor hours	8,000 dlh.	2,000 dlh.	10,000 dlh.
Number of assembly direct labor hours	2,000 dlh.	8,000 dlh.	10,000 dlh.
Number of setups	100 setups	20 setups	120 setups
Number of quality-control inspections	100 insp.	4 insp.	104 insp.
Number of engineering change orders	12 ECOs	4 ECOs	16 ECOs

The activity rates for each activity are determined by dividing the estimated activity cost in Exhibit 11 by the total estimated activity-base usage for each activity in Exhibit 12. The activity rates for Ruiz Company are computed in Exhibit 13.

EXHIBIT 13

Activity Rates—Ruiz Company

Activity	Estimated Activity Cost	÷	Estimated Activity-Base Usage	=	Activity Rate
Fabrication	$530,000	÷	10,000 direct labor hours	=	$53 per direct labor hour
Assembly	$ 70,000	÷	10,000 direct labor hours	=	$7 per direct labor hour
Setup	$480,000	÷	120 setups	=	$4,000 per setup
Quality-control inspections	$312,000	÷	104 inspections	=	$3,000 per inspection
Engineering changes	$208,000	÷	16 engineering changes	=	$13,000 per engineering change order

Overhead Allocation

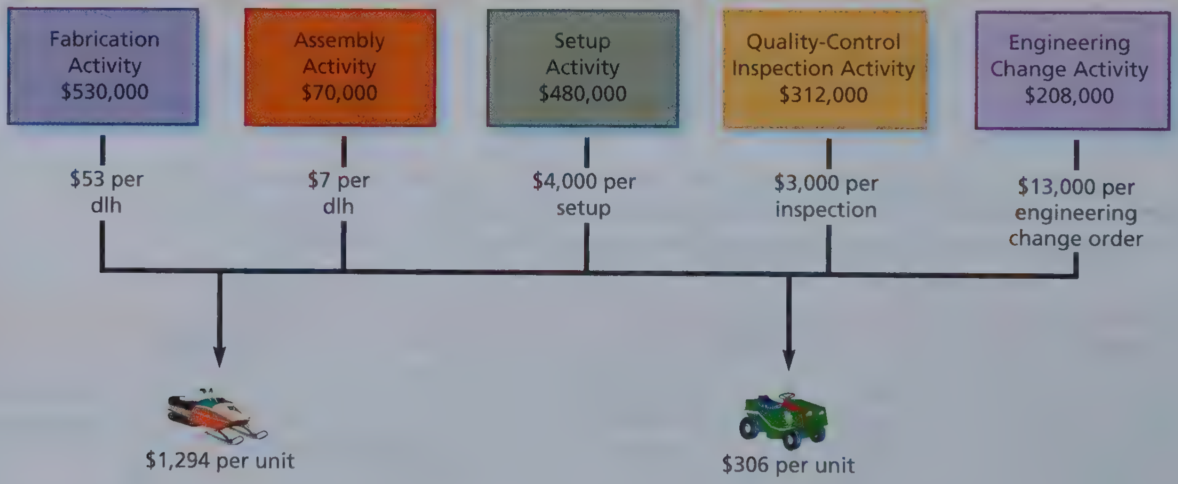
The estimated factory overhead costs are allocated to the snowmobiles and riding mowers by multiplying the activity-base usage for each product by the activity rate. The sum of these costs for each product is the total factory overhead cost for the product. This amount is divided by the total number of units produced to determine the factory overhead cost per unit. These computations are shown in Exhibit 14 for Ruiz Company.

EXHIBIT 14 Activity-Based Product Cost Calculations

	A	B	C	D	E	F	G	H	I	J	K	L
1				Snowmobile						Riding Mower		
2		Activity-		Activity		Activity		Activity-		Activity		Activity
3	Activity	Base Usage	×	Rate	=	Cost		Base Usage	×	Rate	=	Cost
4												
5	Fabrication	8,000 dlh		$53/dlh		$ 424,000		2,000 dlh		$53/dlh		$106,000
6	Assembly	2,000 dlh		$7/dlh		14,000		8,000 dlh		$7/dlh		56,000
7	Setup	100 setups		$4,000/setup		400,000		20 setups		$4,000/setup		80,000
8	Quality-control											
9	inspections	100 insp.		$3,000/insp.		300,000		4 insp.		$3,000/insp.		12,000
10	Engineering											
11	changes	12 ECOs		$13,000/ECO.		156,000		4 ECOs		$13,000/ECO		52,000
12	Total factory											
13	overhead cost					$1,294,000						$306,000
14	Budgeted units											
15	of production					÷ 1,000						÷ 1,000
16	Factory overhead											
17	cost per unit					$ 1,294						$ 306
18												

The allocation of factory overhead using the ABC method for Ruiz Company is illustrated in Exhibit 15.

EXHIBIT 15 Activity-Based Costing Method—Ruiz Company



Dangers of Product Cost Distortion

The allocation of factory overhead affects the accuracy of product costs. In turn, product costs are used for decisions such as establishing product price and determining whether to discontinue a product line.

Using an inappropriate factory overhead allocation method can lead to distorted product costs. To illustrate, assume that Ruiz Company used a single predetermined factory overhead rate to allocate factory overhead to the riding mower and snowmobile. Assume that total estimated factory overhead was allocated using direct labor hours. The single predetermined factory overhead rate for Ruiz is as follows:

$$\text{Predetermined Factory Overhead Rate} = \frac{\text{Estimated Total Factory Overhead Costs}}{\text{Estimated Activity Base}}$$

$$= \frac{\$1{,}600{,}000}{20{,}000 \text{ direct labor hours}}$$

$$= \$80 \text{ per direct labor hour}$$

Using this rate, riding mowers and snowmobiles are each allocated $800,000 of factory overhead ($80 per direct labor hour × 10,000 direct labor hours), or $800 per unit ($800,000/1,000 units). Under the single predetermined factory overhead rate method, each product is allocated the same factory overhead. This is because riding mowers and snowmobiles consume the same amount of direct labor hours.

However, the snowmobiles and riding mowers do not consume setup, quality-control inspection, and engineering change activities in proportion to direct labor hours. For example, each snowmobile consumes more of these activities than does the riding mower, even though each product is budgeted for 10,000 direct labor hours.

As a result, under activity-based costing, factory overhead of $1,294 was allocated to each snowmobile and factory overhead of $306 was allocated to each riding mower (see Exhibit 14). Thus, a single predetermined factory overhead rate distorts the factory overhead allocation, and thus the product cost, of snowmobiles and riding mowers as follows:

	Factory Overhead per Unit	
	Single-Rate Method	**ABC Method**
Snowmobile	$800	$1,294
Riding mower	800	306

As shown above, activity-based costing better allocates factory overhead by recognizing differences in how each product uses factory overhead activities.

If the activity-based costing method was not used, it is likely that Ruiz Company would lose sales of riding mowers. Riding mower prices would be marked up on a product cost that includes factory overhead of $800, instead of the more accurate $306. Likewise, the company would gain sales in snowmobiles. Snowmobile prices would be marked up on a product cost that includes factory overhead of $800, instead of the more accurate $1,294. Furthermore, Ruiz might incorrectly decide to expand production of snowmobiles and discontinue production of riding mowers. By using the activity-based costing method, however, Ruiz Company's product costs are more accurate and the company has a better starting point for making proper pricing and product discontinuance decisions.

Example Exercise 25-9 Activity-Based Costing

OBJ. 4

Thorleif Company has total estimated factory overhead for the year of $600,000, divided into four activities: fabrication, $300,000; assembly, $120,000; setup, $100,000; and materials handling, $80,000. Thorleif manufactures two products: snowboards and skis. The activity-base usage quantities for each product by each activity are as follows:

	Fabrication	**Assembly**	**Setup**	**Materials Handling**
Snowboards	5,000 dlh	15,000 dlh	30 setups	50 moves
Skis	15,000	5,000	220	350
	20,000 dlh	20,000 dlh	250 setups	400 moves

Each product is budgeted for 5,000 units of production for the year. Determine (a) the activity rates for each activity and (b) the factory overhead cost per unit for each product using activity-based costing.

(Continued)

Follow My Example 25-9

a. Fabrication: $300,000/20,000 direct labor hours = $15 per dlh
Assembly: $120,000/20,000 direct labor hours = $6 per dlh
Setup: $100,000/250 setups = $400 per setup
Materials handling: $80,000/400 moves = $200 per move

b.

	A	B	C	D	E	F	G	H	I	J	K	L
1				Snowboard						Skis		
2		Activity-Base		Activity		Activity		Activity-Base		Activity		Activity
3	Activity	Usage	×	Rate	=	Cost		Usage	×	Rate	=	Cost
4												
5	Fabrication	5,000 dlh		$15 per dlh		$ 75,000		15,000 dlh		$15 per dlh		$ 225,000
6	Assembly	15,000 dlh		$6 per dlh		90,000		5,000 dlh		$6 per dlh		30,000
7	Setup	30 setups		$400/setup		12,000		220 setups		$400/setup		88,000
8	Materials handling	50 moves		$200/move		10,000		350 moves		$200/move		70,000
9	Total					$ 187,000						$ 413,000
10	Budgeted units					÷ 5,000						÷ 5,000
11	Factory overhead											
12	per unit					$ 37.40						$ 82.60
13												

Practice Exercises: **PE 25-9A, PE 25-9B**

APPENDIX

Total and Variable Cost Concepts to Setting Normal Price

Recall from the chapter, cost-plus methods determine the normal selling price by estimating a cost amount per unit and adding a markup, as shown below.

Normal Selling Price = Cost Amount per Unit + Markup

Management determines the markup based on the desired profit for the product. The markup should be sufficient to earn the desired profit plus cover any cost and expenses that are not included in the cost amount. The product cost concept was discussed in the chapter, and the total and variable cost concepts are discussed in this appendix.

Total Cost Concept

Under the **total cost concept**, manufacturing cost plus the selling and administrative expenses are included in the total cost per unit. The markup per unit is then computed and added to total cost per unit to determine the normal selling price.

The total cost concept is applied using the following steps:

Step 1. Estimate the total manufacturing cost as shown below.

Manufacturing costs:	
Direct materials	$XXX
Direct labor	XXX
Factory overhead	XXX
Total manufacturing cost	$XXX

Step 2. Estimate the total selling and administrative expenses.

Step 3. Estimate the total cost as shown below.

Total manufacturing costs	$XXX
Selling and administrative expenses	XXX
Total cost	$XXX

Step 4. Divide the total cost by the number of units expected to be produced and sold to determine the total cost per unit, as shown below.

$$\text{Total Cost per Unit} = \frac{\text{Total Cost}}{\text{Estimated Units Produced and Sold}}$$

Step 5. Compute the markup percentage as follows:

$$\text{Markup Percentage} = \frac{\text{Desired Profit}}{\text{Total Cost}}$$

The desired profit is normally computed based on a rate of return on assets as follows:

$$\text{Desired Profit} = \text{Desired Rate of Return} \times \text{Total Assets}$$

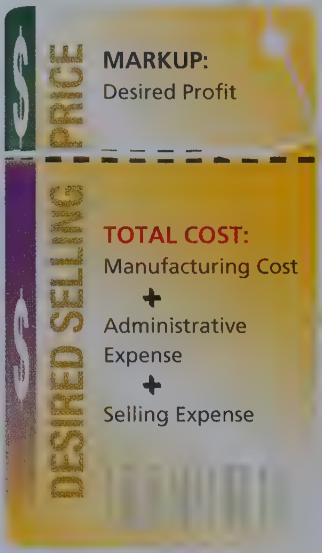
Step 6. Determine the markup per unit by multiplying the markup percentage times the total cost per unit as follows:

$$\text{Markup per Unit} = \text{Markup Percentage} \times \text{Total Cost per Unit}$$

Step 7. Determine the normal selling price by adding the markup per unit to the total cost per unit as follows:

Total cost per unit	$XXX
Markup per unit	XXX
Normal selling price per unit	$XXX

TOTAL COST CONCEPT



To illustrate, assume the following data for 100,000 calculators that Digital Solutions Inc. expects to produce and sell during the current year:

Manufacturing costs:		
Direct materials ($3.00 × 100,000)		$ 300,000
Direct labor ($10.00 × 100,000)		1,000,000
Factory overhead:		
Variable costs ($1.50 × 100,000)	$150,000	
Fixed costs	50,000	200,000
Total manufacturing cost		$1,500,000
Selling and administrative expenses:		
Variable expenses ($1.50 × 100,000)	$150,000	
Fixed costs	20,000	
Total selling and administrative expenses		170,000
Total cost		$1,670,000
Desired rate of return		20%
Total assets		$ 800,000

Using the total cost concept, the normal selling price of $18.30 is determined as follows:

Step 1. Total manufacturing cost: $1,500,000
Step 2. Total selling and administrative expenses: $170,000
Step 3. Total cost: $1,670,000
Step 4. Total cost per unit: $16.70

$$\text{Total Cost per Unit} = \frac{\text{Total Cost}}{\text{Estimated Units Produced and Sold}} = \frac{\$1,670,000}{100,000 \text{ units}} = \$16.70 \text{ per unit}$$

Step 5. Markup percentage: 9.6% (rounded)

$$\text{Desired Profit} = \text{Desired Rate of Return} \times \text{Total Assets} = 20\% \times \$800{,}000 = \$160{,}000$$

$$\text{Markup Percentage} = \frac{\text{Desired Profit}}{\text{Total Cost}} = \frac{\$160{,}000}{\$1{,}670{,}000} = 9.6\%\ \text{(rounded)}$$

Step 6. Markup per unit: $1.60

$$\text{Markup per Unit} = \text{Markup Percentage} \times \text{Total Cost per Unit}$$
$$\text{Markup per Unit} = 9.6\% \times \$16.70 = \$1.60\ \text{per unit}$$

Step 7. Normal selling price: $18.30

Total cost per unit	$16.70
Markup per unit	1.60
Normal selling price per unit	$18.30

The ability of the selling price of $18.30 to generate the desired profit of $160,000 is illustrated by the income statement shown below.

Digital Solutions Inc.
Income Statement
For the Year Ended December 31, 2012

Sales (100,000 units × $18.30)		$1,830,000
Expenses:		
Variable (100,000 units × $16.00)	$1,600,000	
Fixed ($50,000 + $20,000)	70,000	1,670,000
Income from operations		$ 160,000

The total cost concept is often used by contractors who sell products to government agencies. This is because in many cases government contractors are required by law to be reimbursed for their products on a total-cost-plus-profit basis.

Variable Cost Concept

Under the **variable cost concept**, only variable costs are included in the cost amount per unit to which the markup is added. All variable manufacturing costs, as well as variable selling and administrative expenses, are included in the cost amount. Fixed manufacturing costs, fixed selling and administrative expenses, and desired profit are included in the markup. The markup per unit is then added to the variable cost per unit to determine the normal selling price.

The variable cost concept is applied using the following steps:

Step 1. Estimate the total variable product cost as follows:

Variable product costs:	
Direct materials	$XXX
Direct labor	XXX
Variable factory overhead	XXX
Total variable product cost	$XXX

Step 2. Estimate the total variable selling and administrative expenses.

Step 3. Determine the total variable cost as follows:

Total variable product cost	$XXX
Total variable selling and administrative expenses	XXX
Total variable cost	$XXX

Step 4. Compute the variable cost per unit as follows:

$$\text{Variable Cost per Unit} = \frac{\text{Total Variable Cost}}{\text{Estimated Units Produced and Sold}}$$

Step 5. Compute the markup percentage as follows:

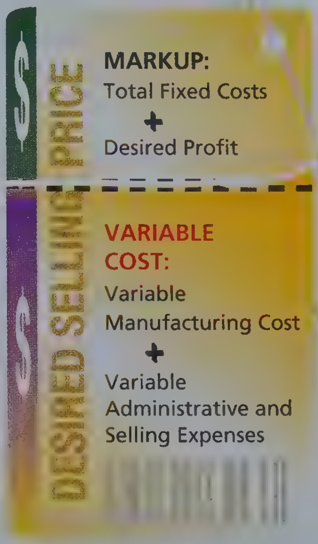
$$\text{Markup Percentage} = \frac{\text{Desired Profit} + \text{Total Fixed Costs and Expenses}}{\text{Total Variable Cost}}$$

The numerator of the markup percentage is the desired profit plus the total fixed costs (fixed factory overhead) and expenses (selling and administrative). These fixed costs and expenses must be included in the markup percentage, since they are not included in the cost amount to which the markup is added.

As illustrated for the total and product cost concepts, the desired profit is normally computed based on a rate of return on assets as follows:

$$\text{Desired Profit} = \text{Desired Rate of Return} \times \text{Total Assets}$$

VARIABLE COST CONCEPT



Step 6. Determine the markup per unit by multiplying the markup percentage times the variable cost per unit as follows:

$$\text{Markup per Unit} = \text{Markup Percentage} \times \text{Variable Cost per Unit}$$

Step 7. Determine the normal selling price by adding the markup per unit to the variable cost per unit as follows:

Variable cost per unit	$XXX
Markup per unit	XXX
Normal selling price per unit	$XXX

To illustrate, assume the same data for the production and sale of 100,000 calculators by Digital Solutions Inc. as in the preceding example. The normal selling price of $18.30 is determined under the variable cost concept as follows:

Step 1. Total variable product cost: $1,450,000

Variable product costs:	
Direct materials ($3 × 100,000)	$ 300,000
Direct labor ($10 × 100,000)	1,000,000
Variable factory overhead ($1.50 × 100,000)	150,000
Total variable product cost	$1,450,000

Step 2. Total variable selling and administrative expenses: $150,000 ($1.50 × 100,000)

Step 3. Total variable cost: $1,600,000 ($1,450,000 + $150,000)

Step 4. Variable cost per unit: $16.00

$$\text{Variable Cost per Unit} = \frac{\text{Total Variable Cost}}{\text{Estimated Units Produced and Sold}} = \frac{\$1{,}600{,}000}{100{,}000 \text{ units}} = \$16 \text{ per unit}$$

Step 5. Markup percentage: 14.4% (rounded)

$$\text{Desired Profit} = \text{Desired Rate of Return} \times \text{Total Assets} = 20\% \times \$800{,}000 = \$160{,}000$$

$$\text{Markup Percentage} = \frac{\text{Desired Profit} + \text{Total Fixed Costs and Expenses}}{\text{Total Variable Cost}}$$

$$\text{Markup Percentage} = \frac{\$160{,}000 + \$50{,}000 + \$20{,}000}{\$1{,}600{,}000} = \frac{\$230{,}000}{\$1{,}600{,}000}$$

$$\text{Markup Percentage} = 14.4\% \text{ (rounded)}$$

Step 6. Markup per unit: $2.30

$$\text{Markup per Unit} = \text{Markup Percentage} \times \text{Variable Cost per Unit}$$
$$\text{Markup per Unit} = 14.4\% \times \$16.00 = \$2.30 \text{ per unit}$$

Step 7. Normal selling price: $18.30

Total variable cost per unit	$16.00
Markup per unit	2.30
Normal selling price per unit	$18.30

At a Glance 25

OBJ. 1 Prepare differential analysis reports for a variety of managerial decisions.

Key Points Differential analysis reports for various decisions listed on page 1161 are illustrated in the text. Each analysis focuses on the differential effects on income (loss) for alternative courses of action.

Learning Outcomes	Example Exercises	Practice Exercises
• Prepare a lease or sell differential analysis.	EE25-1	PE25-1A, 25-1B
• Prepare a discontinued segment differential analysis.	EE25-2	PE25-2A, 25-2B
• Prepare a make-or-buy differential analysis.	EE25-3	PE25-3A, 25-3B
• Prepare an equipment replacement differential analysis.	EE25-4	PE25-4A, 25-4B
• Prepare a process or sell differential analysis.	EE25-5	PE25-5A, 25-5B
• Prepare an accept business at a special price differential analysis.	EE25-6	PE25-6A, 25-6B

OBJ. 2 Determine the selling price of a product, using the product cost concept.

Key Points The three cost concepts commonly used in applying the cost-plus approach to product pricing are the product cost, total cost (appendix), and variable cost (appendix) concepts.

Target costing combines market-based methods with a cost-reduction emphasis.

Learning Outcomes	Example Exercises	Practice Exercises
• Compute the markup percentage using the product cost concept.	EE25-7	PE25-7A, 25-7B
• Define and describe target costing.		

OBJ. 3 Compute the relative profitability of products in bottleneck production processes.

Key Points The relative profitability of a product in a bottleneck production environment is determined by dividing the unit contribution margin by the bottleneck hours per unit.

Learning Outcomes	Example Exercises	Practice Exercises
• Compute the unit contribution margin per bottleneck hour.	EE25-8	PE25-8A, 25-8B
• Compute the indifference price between products using the unit contribution margin per bottleneck hour.		

OBJ. 4 Allocate product costs using activity-based costing.

Key Points Activity-based costing requires factory overhead to be assigned to activities. The estimated activity costs are allocated to products by multiplying activity rates by the activity-base usage quantity consumed for each product. Activity-based costing may provide more accurate allocation of factory overhead in complex product and manufacturing environments.

Learning Outcomes	Example Exercises	Practice Exercises
• Compute activity rates.	EE25-9	PE25-9A, 25-9B
• Allocate factory overhead costs to products using ABC.	EE25-9	PE25-9A, 25-9B

Key Terms

activities (1176)
activity base (1177)
activity-based costing (ABC) (1176)
activity rate (1177)
differential analysis (1158)
differential cost (1159)
differential income (loss) (1159)
differential revenue (1159)
engineering change order (ECO) (1176)
opportunity cost (1166)
product cost concept (1171)
production bottleneck (1173)
setup (1176)
sunk cost (1161)
target costing (1173)
theory of constraints (TOC) (1173)
total cost concept (1180)
variable cost concept (1182)

Illustrative Problem

Inez Company recently began production of a new product, a digital clock, which required the investment of $1,600,000 in assets. The costs of producing and selling 80,000 units of the digital clock are estimated as follows:

Variable costs:	
Direct materials	$10.00 per unit
Direct labor	6.00
Factory overhead	4.00
Selling and administrative expenses	5.00
Total	$25.00 per unit
Fixed costs:	
Factory overhead	$800,000
Selling and administrative expenses	400,000

Inez Company is currently considering establishing a selling price for the digital clock. The president of Inez Company has decided to use the cost-plus approach to product pricing and has indicated that the digital clock must earn a 10% rate of return on invested assets.

Instructions

1. Determine the amount of desired profit from the production and sale of the digital clock.
2. Assuming that the product cost concept is used, determine (a) the cost amount per unit, (b) the markup percentage, and (c) the selling price of the digital clock.
3. Under what conditions should Inez Company consider using activity-based costing rather than a single factory overhead allocation rate in allocating factory overhead to the digital clock?
4. Assume the market price for similar digital clocks was estimated at $38. Compute the reduction in manufacturing cost per unit needed to maintain the desired profit and existing selling and administrative expenses under target costing.
5. Assume that for the current year, the selling price of the digital clock was $42 per unit. To date, 60,000 units have been produced and sold, and analysis of the domestic market indicates that 15,000 additional units are expected to be sold during the remainder of the year. On August 7, 2012, Inez Company received an offer from Wong Inc. for 4,000 units of the digital clock at $28 each. Wong Inc. will market the

units in Korea under its own brand name, and no selling and administrative expenses associated with the sale will be incurred by Inez Company. The additional business is not expected to affect the domestic sales of the digital clock, and the additional units could be produced during the current year, using existing capacity. Prepare a differential analysis dated August 7, 2012, to determine whether to reject (Alternative 1) or accept (Alternative 2) the special order from Wong.

Solution

1. \$160,000 (\$1,600,000 × 10%)
2. a. Total manufacturing costs:

Variable (\$20 × 80,000 units)	\$1,600,000
Fixed factory overhead	800,000
Total	\$2,400,000

Cost amount per unit: \$2,400,000/80,000 units = \$30.00

b.
$$\text{Markup Percentage} = \frac{\text{Desired Profit} + \text{Total Selling and Administrative Expenses}}{\text{Total Product Cost}}$$

$$\text{Markup Percentage} = \frac{\$160{,}000 + \$400{,}000 + (\$5 \times 80{,}000 \text{ units})}{\$2{,}400{,}000}$$

$$\text{Markup Percentage} = \frac{\$160{,}000 + \$400{,}000 + \$400{,}000}{\$2{,}400{,}000}$$

$$\text{Markup Percentage} = \frac{\$960{,}000}{\$2{,}400{,}000} = 40\%$$

c.

Cost amount per unit	\$30.00
Markup (\$30 × 40%)	12.00
Selling price	\$42.00

3. Inez should consider using activity-based costing for factory overhead allocation when the product and manufacturing operations are complex. For example, if the digital clock was introduced as one among many different consumer digital products, then it is likely these products will consume factory activities in different ways. If this is combined with complex manufacturing and manufacturing support processes, then it is likely a single overhead allocation rate will lead to distorted factory overhead allocation. Specifically, the digital clock is a new product. Thus, it is likely that it will consume more factory overhead than existing stable and mature products. In such case, a single rate would result in the digital clock being undercosted compared to results using activity-based rates for factory overhead allocation.

4.

Current selling price	\$42
Expected selling price	−38
Required reduction in manufacturing cost to maintain same profit	\$ 4

Revised revenue and cost figures:

	Current	Desired
Selling price	\$42	\$38
Costs:		
Variable selling and administrative expenses per unit	\$ 5	\$ 5
Fixed selling and administrative expenses per unit (\$400,000/80,000 units)	5	5
Existing manufacturing cost per unit [part (2)]	30	
Target manufacturing cost per unit (\$30 – \$4)		26
Total costs	\$40	\$36
Profit	\$ 2	\$ 2

5.

Differential Analysis—Wong Inc. Special Order
Reject Order (Alternative 1) or Accept Order (Alternative 2)
August 7, 2012

	Reject Order (Alternative 1)	Accept Order (Alternative 2)	Differential Effect on Income (Alternative 2)
Revenues	$0	$112,000*	$112,000
Costs:			
Variable manufacturing costs	0	–80,000**	–80,000
Income (loss)	$0	$ 32,000	$ 32,000

*4,000 units × $28 per unit
**4,000 units × $20 per unit

The proposal should be accepted.

Discussion Questions

1. Explain the meaning of (a) differential revenue, (b) differential cost, and (c) differential income.
2. A company could sell a building for $250,000 or lease it for $2,500 per month. What would need to be considered in determining if the lease option would be preferred?
3. A chemical company has a commodity-grade and premium-grade product. Why might the company elect to process the commodity-grade product further to the premium-grade product?
4. A company accepts incremental business at a special price that exceeds the variable cost. What other issues must the company consider in deciding whether to accept the business?
5. A company fabricates a component at a cost of $6.00. A supplier offers to supply the same component for $5.50. Under what circumstances is it reasonable to purchase from the supplier?
6. Many fast-food restaurant chains, such as McDonald's, will occasionally discontinue restaurants in their system. What are some financial considerations in deciding to eliminate a store?
7. In the long run, the normal selling price must be set high enough to cover what factors?
8. Although the cost-plus approach to product pricing may be used by management as a general guideline, what are some examples of other factors that managers should also consider in setting product prices?
9. How does the target cost concept differ from cost-plus approaches?
10. What is the appropriate measure of a product's value when a firm is operating under production bottlenecks?
11. Under what conditions might a company use activity-based costing to allocate factory overhead to products?

Practice Exercises

Learning Objectives *Example Exercises*

OBJ. 1 **EE 25-1** *p. 1161*

PE 25-1A Lease or sell

Kincaid Company owns a machine with a cost of $365,000 and accumulated depreciation of $55,000 that can be sold for $276,000, less a 5% sales commission. Alternatively, the machine can be leased by Kincaid Company for three years for a total of $287,000, at the end of which there is no residual value. In addition, the repair, insurance, and property tax expense that would be incurred by Kincaid Company on the machine would total $15,900 over the three years. Prepare a differential analysis on January 12, 2012, as to whether Kincaid Company should lease (Alternative 1) or sell (Alternative 2) the equipment.

OBJ. 1 **EE 25-1** *p. 1161*

PE 25-1B Lease or sell

Lassiter Company owns equipment with a cost of $140,000 and accumulated depreciation of $75,000 that can be sold for $55,000, less a 6% sales commission. Alternatively, the equipment can be leased by Lassiter Company for five years for a total of $51,000, at the end of which there is no residual value. In addition, the repair, insurance, and property tax expense that would be incurred by Lassiter Company on the equipment would total $6,400 over the five years. Prepare a differential analysis on March 23, 2012, as to whether Lassiter Company should lease (Alternative 1) or sell (Alternative 2) the equipment.

OBJ. 1 **EE 25-2** *p. 1163*

PE 25-2A Discontinue a segment

Product T has revenue of $194,000, variable cost of goods sold of $115,000, variable selling expenses of $33,000, and fixed costs of $60,000, creating a loss from operations of $14,000. Prepare a differential analysis as of September 12, 2012, to determine if Product T should be continued (Alternative 1) or discontinued (Alternative 2).

OBJ. 1 **EE 25-2** *p. 1163*

PE 25-2B Discontinue a segment

Product J has revenue of $49,000, variable cost of goods sold of $28,000, variable selling expenses of $15,000, and fixed costs of $14,000, creating a loss from operations of $8,000. Prepare a differential analysis as of May 9, 2012, to determine if Product J should be continued (Alternative 1) or discontinued (Alternative 2).

OBJ. 1 **EE 25-3** *p. 1165*

PE 25-3A Make or buy

A restaurant bakes its own bread for $150 per unit (100 loaves), including fixed costs of $34 per unit. A proposal is offered to purchase bread from an outside source for $101 per unit, plus $9 per unit for delivery. Prepare a differential analysis dated August 16, 2012, to determine whether the company should make (Alternative 1) or buy (Alternative 2) the bread.

OBJ. 1 **EE 25-3** *p. 1165*

PE 25-3B Make or buy

A company manufactures various sized plastic bottles for its medicinal product. The manufacturing cost for small bottles is $46 per unit (100 bottles), including fixed costs of $14 per unit. A proposal is offered to purchase small bottles from an outside source for $30 per unit, plus $6 per unit for freight. Prepare a differential analysis dated March 30, 2012, to determine whether the company should make (Alternative 1) or buy (Alternative 2) the bottles.

Learning Objectives *Example Exercises*

OBJ. 1 **EE 25-4** *p. 1166*

PE 25-4A Replace equipment

A machine with a book value of $250,000 has an estimated six-year life. A proposal is offered to sell the old machine for $216,000 and replace it with a new machine at a cost of $282,000. The new machine has a six-year life with no residual value. The new machine would reduce annual direct labor costs from $50,000 to $40,000. Prepare a differential analysis dated February 18, 2012, on whether to continue with the old machine (Alternative 1) or replace the old machine (Alternative 2).

OBJ. 1 **EE 25-4** *p. 1166*

PE 25-4B Replace equipment

A machine with a book value of $75,000 has an estimated five-year life. A proposal is offered to sell the old machine for $64,000 and replace it with a new machine at a cost of $80,000. The new machine has a five-year life with no residual value. The new machine would reduce annual direct labor costs from $9,500 to $5,500. Prepare a differential analysis dated April 11, 2012, on whether to continue with the old machine (Alternative 1) or replace the old machine (Alternative 2).

OBJ. 1 **EE 25-5** *p. 1168*

PE 25-5A Process or sell

Product T is produced for $3.50 per pound. Product T can be sold without additional processing for $4.15 per pound, or processed further into Product U at an additional cost of $0.44 per pound. Product U can be sold for $4.50 per pound. Prepare a differential analysis dated September 17, 2012, on whether to sell Product T (Alternative 1) or process further into Product U (Alternative 2).

OBJ. 1 **EE 25-5** *p. 1168*

PE 25-5B Process or sell

Product D is produced for $52 per gallon. Product D can be sold without additional processing for $80 per gallon, or processed further into Product E at an additional cost of $19 per gallon. Product E can be sold for $102 per gallon. Prepare a differential analysis dated June 9, 2012, on whether to sell Product D (Alternative 1) or process further into Product E (Alternative 2).

OBJ. 1 **EE 25-6** *p. 1169*

PE 25-6A Accept business at special price

Product R is normally sold for $45 per unit. A special price of $32 is offered for the export market. The variable production cost is $25 per unit. An additional export tariff of 15% of revenue must be paid for all export products. Assume there is sufficient capacity for the special order. Prepare a differential analysis dated July 7, 2012, on whether to reject (Alternative 1) or accept (Alternative 2) the special order.

OBJ. 1 **EE 25-6** *p. 1169*

PE 25-6B Accept business at special price

Product A is normally sold for $8.90 per unit. A special price of $6.60 is offered for the export market. The variable production cost is $5.10 per unit. An additional export tariff of 25% of revenue must be paid for all export products. Assume there is sufficient capacity for the special order. Prepare a differential analysis dated January 22, 2012, on whether to reject (Alternative 1) or accept (Alternative 2) the special order.

OBJ. 2 **EE 25-7** *p. 1172*

PE 25-7A Product cost markup percentage

Crescent Lighting Inc. produces and sells lighting fixtures. An entry light has a total cost of $60 per unit, of which $32 is product cost and $28 is selling and administrative expenses. In addition, the total cost of $60 is made up of $40 variable cost and $20 fixed cost. The desired profit is $12 per unit. Determine the markup percentage on product cost.

OBJ. 2 **EE 25-7** *p. 1172*

PE 25-7B Product cost markup percentage

Eden Garden Tools Inc. produces and sells home and garden tools and equipment. A lawnmower has a total cost of $200 per unit, of which $140 is product cost and $60 is selling and administrative expenses. In addition, the total cost of $200 is made up of $150 variable cost and $50 fixed cost. The desired profit is $38 per unit. Determine the markup percentage on product cost.

Learning Objectives *Example Exercises*

OBJ. 3 **EE 25-8** *p. 1175*

PE 25-8A Bottleneck profit

Product A has a unit contribution margin of $27. Product B has a unit contribution margin of $55. Product A requires three testing hours, while Product B requires five testing hours. Determine the most profitable product, assuming the testing is a constraint.

OBJ. 3 **EE 25-8** *p. 1175*

PE 25-8B Bottleneck profit

Product K has a unit contribution margin of $160. Product L has a unit contribution margin of $80. Product K requires eight furnace hours, while Product L requires five furnace hours. Determine the most profitable product, assuming the furnace is a constraint.

OBJ. 4 **EE 25-9** *p. 1179*

PE 25-9A Activity-based costing

Maritime Marine Company has total estimated factory overhead for the year of $900,000, divided into four activities: fabrication, $330,000; assembly, $180,000; setup, $140,000; and inspection, $250,000. Maritime manufactures two types of boats: a speedboat and a bass boat. The activity-base usage quantities for each product by each activity are as follows:

	Fabrication	Assembly	Setup	Inspection
Speedboat	1,000 dlh	1,500 dlh	50 setups	100 inspections
Bass boat	1,500	1,000	90	400
	2,500 dlh	2,500 dlh	140 setups	500 inspections

Each product is budgeted for 250 units of production for the year. Determine (a) the activity rates for each activity and (b) the factory overhead cost per unit for each product using activity-based costing.

OBJ. 4 **EE 25-9** *p. 1179*

PE 25-9B Activity-based costing

Urban Styles Inc. has total estimated factory overhead for the year of $360,000, divided into four activities: cutting, $120,000; sewing, $60,000; setup, $100,000; and inspection, $80,000. Urban Styles manufactures two types of men's pants: jeans and khakis. The activity-based usage quantities for each product by each activity are as follows:

	Cutting	Sewing	Setup	Inspection
Jeans	1,000 dlh	2,000 dlh	1,600 setups	3,500 inspections
Khakis	2,000	1,000	400	500
	3,000 dlh	3,000 dlh	2,000 setups	4,000 inspections

Each product is budgeted for 20,000 units of production for the year. Determine (a) the activity rates for each activity and (b) the factory overhead cost per unit for each product using activity based costing.

Exercises

OBJ. 1

✔ **a. Differential revenue from selling, –$9,000**

EX 25-1 Differential analysis for a lease or sell decision

Sure-Bilt Construction Company is considering selling excess machinery with a book value of $280,000 (original cost of $400,000 less accumulated depreciation of $120,000) for $276,000, less a 5% brokerage commission. Alternatively, the machinery can be leased for a total of $285,000 for five years, after which it is expected to have no residual value. During the period of the lease, Sure-Bilt Construction Company's costs of repairs, insurance, and property tax expenses are expected to be $25,500.

a. Prepare a differential analysis, dated January 3, 2012, to determine whether Sure-Bilt should lease (Alternative 1) or sell (Alternative 2) the machinery.

b. On the basis of the data presented, would it be advisable to lease or sell the machinery? Explain.

OBJ. 1

EX 25-2 Differential analysis for a lease or buy decision

Gilroy Corporation is considering new equipment. The equipment can be purchased from an overseas supplier for $3,200. The freight and installation costs for the equipment are $640. If purchased, annual repairs and maintenance are estimated to be $400 per year over the four-year useful life of the machine. Alternatively, Gilroy can lease the machine from a domestic supplier for $1,400 per year for four years, with no additional costs. Prepare a differential analysis dated October 3, 2012, to determine whether Gilroy should lease (Alternative 1) or purchase (Alternative 2) the machine. *Hint:* This is a "lease or *buy*" decision, which must be analyzed from the perspective of the equipment user, as opposed to the equipment owner.

OBJ. 1

✔ a. Differential revenues, –$235,000

EX 25-3 Differential analysis for a discontinued product

A condensed income statement by product line for Crown Beverage Inc. indicated the following for King Cola for the past year:

Sales	$235,000
Cost of goods sold	110,000
Gross profit	$125,000
Operating expenses	144,000
Loss from operations	$(19,000)

It is estimated that 16% of the cost of goods sold represents fixed factory overhead costs and that 20% of the operating expenses are fixed. Since King Cola is only one of many products, the fixed costs will not be materially affected if the product is discontinued.

a. Prepare a differential analysis, dated March 3, 2012, to determine whether King Cola should be continued (Alternative 1) or discontinued (Alternative 2).

b. Should King Cola be retained? Explain.

OBJ. 1

✔ a. Alternative 1 loss, $3,300

EX 25-4 Differential analysis for a discontinued product

The condensed product-line income statement for Porcelain Tableware Company for the month of December is as follows:

Porcelain Tableware Company
Product-Line Income Statement
For the Month Ended December 31, 2012

	Bowls	Plates	Cups
Sales	$65,000	$89,400	$26,900
Cost of goods sold	26,300	32,800	14,800
Gross profit	$38,700	$56,600	$12,100
Selling and administrative expenses	29,400	34,900	15,400
Income from operations	$ 9,300	$21,700	$ (3,300)

Fixed costs are 15% of the cost of goods sold and 40% of the selling and administrative expenses. Porcelain Tableware assumes that fixed costs would not be materially affected if the Cups line were discontinued.

a. Prepare a differential analysis dated December 31, 2012, to determine if Cups should be continued (Alternative 1) or discontinued (Alternative 2).

b. Should the Cups line be retained? Explain.

OBJ. 1

EX 25-5 Segment analysis, Charles Schwab Corporation

Charles Schwab Corporation is one of the more innovative brokerage and financial service companies in the United States. The company recently provided information about its major business segments as follows (in millions):

	Investor Services	Institutional Services
Revenues	$2,710	$1,483
Income from operations	1,024	183
Depreciation	100	59

a. How do you believe Schwab defines the difference between the "Investor Services" and "Institutional Services" segments?

b. Provide a specific example of a variable and fixed cost in the "Investor Services" segment.

c. Estimate the contribution margin for each segment, assuming depreciation represents the majority of fixed costs.

d. If Schwab decided to sell its "Institutional Services" accounts to another company, estimate how much operating income would decline.

OBJ. 1

EX 25-6 Decision to discontinue a product

On the basis of the following data, the general manager of Glide Shoes Inc. decided to discontinue Children's Shoes because it reduced income from operations by $25,000. What is the flaw in this decision if it is assumed fixed costs would not be materially affected by the discontinuance?

Glide Shoes Inc.
Product-Line Income Statement
For the Year Ended August 31, 2012

	Children's Shoes	Men's Shoes	Women's Shoes	Total
Sales	$200,000	$300,000	$500,000	$1,000,000
Costs of goods sold:				
Variable costs	$125,000	$150,000	$220,000	$ 495,000
Fixed costs	50,000	60,000	120,000	230,000
Total cost of goods sold	$175,000	$210,000	$340,000	$ 725,000
Gross profit	$ 25,000	$ 90,000	$160,000	$ 275,000
Selling and adminstrative expenses:				
Variable selling and admin. expenses	$ 28,000	$ 45,000	$ 95,000	$ 168,000
Fixed selling and admin. expenses	22,000	20,000	25,000	67,000
Total selling and admin. expenses	$ 50,000	$ 65,000	$120,000	$ 235,000
Income (loss) from operations	$ (25,000)	$ 25,000	$ 40,000	$ 40,000

OBJ. 1

✔ a. Differential loss from buying, $4.00 per case

EX 25-7 Make-or-buy decision

Matchless Computer Company has been purchasing carrying cases for its portable computers at a delivered cost of $55 per unit. The company, which is currently operating below full capacity, charges factory overhead to production at the rate of 40% of direct labor cost. The fully absorbed unit costs to produce comparable carrying cases are expected to be as follows:

Direct materials	$28.00
Direct labor	20.00
Factory overhead (40% of direct labor)	8.00
Total cost per unit	$56.00

If Matchless Computer Company manufactures the carrying cases, fixed factory overhead costs will not increase and variable factory overhead costs associated with the cases are expected to be 15% of the direct labor costs.

a. Prepare a differential analysis, dated October 11, 2012, to determine whether the company should make (Alternative 1) or buy (Alternative 2) the carrying case.

b. On the basis of the data presented, would it be advisable to make the carrying cases or to continue buying them? Explain.

OBJ. 1

EX 25-8 Make-or-buy decision

The Theater Arts Guild of Miami (TAG-M) employs five people in its Publication Department. These people layout pages for pamphlets, brochures, magazines, and other publications for the TAG-M productions. The pages are delivered to an outside company for printing. The company is considering an outside publication service for the layout work. The outside service is quoting a price of $14 per layout page. The budget for the Publication Department for 2013 is as follows:

Salaries	$185,000
Benefits	42,000
Supplies	23,000
Office expenses	28,000
Office depreciation	25,000
Computer depreciation	17,000
Total	$320,000

The department expects to layout 20,000 pages for 2012. The computers used by the department have an estimated residual value of $9,000. The Publication Department office space would be used for future administrative needs, if the department's function were purchased from the outside.

a. Prepare a differential analysis dated December 15, 2012, to determine whether TAG-M should layout pages internally (Alternative 1) or purchase layout services from the outside (Alternative 2).

b. On the basis of your analysis in part (a), should the page layout work be purchased from an outside company?

c. What additional considerations might factor into the decision making?

OBJ. 1

EX 25-9 Machine replacement decision

A company is considering replacing an old piece of machinery, which cost $600,000 and has $350,000 of accumulated depreciation to date, with a new machine that costs $485,000. The old equipment could be sold for $63,000. The annual variable production costs associated with the old machine are estimated to be $157,000 per year for eight years. The annual variable production costs for the new machine are estimated to be $100,500 per year for eight years.

a. Prepare a differential analysis dated October 3, 2012, to determine whether to continue with (Alternative 1) or replace (Alternative 2) the old machine.

b. What is the sunk cost in this situation?

OBJ. 1

✔ a. Differential loss, $7,500

EX 25-10 Differential analysis for machine replacement

Taipei Digital Components Company assembles circuit boards by using a manually operated machine to insert electronic components. The original cost of the machine is $60,000, the accumulated depreciation is $24,000, its remaining useful life is five years, and its residual value is negligible. On September 27, 2012, a proposal was made to replace the present manufacturing procedure with a fully automatic machine that will cost $125,000. The automatic machine has an estimated useful life of five years and no significant residual value. For use in evaluating the proposal, the accountant accumulated the following annual data on present and proposed operations:

	Present Operations	Proposed Operations
Sales	$190,000	$190,000
Direct materials	$ 65,000	$ 65,000
Direct labor	45,000	—
Power and maintenance	4,000	22,000
Taxes, insurance, etc.	1,500	5,000
Selling and administrative expenses	45,000	45,000
Total expenses	$160,500	$137,000

a. Prepare a differential analysis dated September 27, 2012, to determine whether to continue with the old machine (Alternative 1) or replace the old machine (Alternative 2). Prepare the analysis over the useful life of the new machine.

b. Based only on the data presented, should the proposal be accepted?

c. What are some of the other factors that should be considered before a final decision is made?

OBJ. 1

EX 25-11 Sell or process further

Jackson Lumber Company incurs a cost of $390 per hundred board feet in processing certain "rough-cut" lumber, which it sells for $555 per hundred board feet. An alternative is to produce a "finished cut" at a total processing cost of $525 per hundred board feet, which can be sold for $760 per hundred board feet. Prepare a differential analysis dated March 4, 2012, on whether to sell rough-cut lumber (Alternative 1) or process further into finished-cut lumber (Alternative 2).

OBJ. 1

EX 25-12 Sell or process further

Abica Roast Coffee Company produces Columbian coffee in batches of 6,000 pounds. The standard quantity of materials required in the process is 6,000 pounds, which cost $5.00 per pound. Columbian coffee can be sold without further processing for $8.40 per pound. Columbian coffee can also be processed further to yield Decaf Columbian, which can be sold for $10.00 per pound. The processing into Decaf Columbian requires additional processing costs of $9,450 per batch. The additional processing will also cause a 5% loss of product due to evaporation.

a. Prepare a differential analysis dated August 28, 2012, on whether to sell regular Columbian (Alternative 1) or process further into Decaf Columbian (Alternative 2).

b. Should Abica Roast sell Columbian coffee or process further and sell Decaf Columbian?

c. Determine the price of Decaf Columbian that would cause neither an advantage or disadvantage for processing further and selling Decaf Columbian.

OBJ. 1

✔ a. Differential income, $30,000

EX 25-13 Decision on accepting additional business

Country Jeans Co. has an annual plant capacity of 65,000 units, and current production is 45,000 units. Monthly fixed costs are $40,000, and variable costs are $25 per unit. The present selling price is $35 per unit. On February 2, 2012, the company received an offer from Miller Company for 15,000 units of the product at $27 each. Miller Company will market the units in a foreign country under its own brand name. The additional business is not expected to affect the domestic selling price or quantity of sales of Country Jeans Co.

a. Prepare a differential analysis on whether to reject (Alternative 1) or accept (Alternative 2) the Miller order.

b. Briefly explain the reason why accepting this additional business will increase operating income.

c. What is the minimum price per unit that would produce a positive contribution margin?

OBJ. 1

EX 25-14 Accepting business at a special price

Forever Ready Company expects to operate at 85% of productive capacity during May. The total manufacturing costs for May for the production of 25,000 batteries are budgeted as follows:

Direct materials	$255,000
Direct labor	110,000
Variable factory overhead	35,000
Fixed factory overhead	57,000
Total manufacturing costs	$457,000

The company has an opportunity to submit a bid for 2,000 batteries to be delivered by May 31 to a government agency. If the contract is obtained, it is anticipated that the additional activity will not interfere with normal production during May or increase the selling or administrative expenses. What is the unit cost below which Forever Ready Company should not go in bidding on the government contract?

OBJ. 1

✔ a. Differential revenue, $1,440,000

EX 25-15 Decision on accepting additional business

Glide Ride Tire and Rubber Company has capacity to produce 170,000 tires. Glide Ride presently produces and sells 130,000 tires for the North American market at a price of $90 per tire. Glide Ride is evaluating a special order from a European automobile company, Euro Motors. Euro is offering to buy 20,000 tires for $72 per tire. Glide Ride's accounting system indicates that the total cost per tire is as follows:

Direct materials	$34
Direct labor	12
Factory overhead (60% variable)	20
Selling and administrative expenses (35% variable)	18
Total	$84

Glide Ride pays a selling commission equal to 5% of the selling price on North American orders, which is included in the variable portion of the selling and administrative expenses. However, this special order would not have a sales commission. If the order was accepted, the tires would be shipped overseas for an additional shipping cost of $5.00 per tire. In addition, Euro has made the order conditional on receiving European safety certification. Glide Ride estimates that this certification would cost $95,000.

a. Prepare a differential analysis dated May 4, 2012, on whether to reject (Alternative 1) or accept (Alternative 2) the special order from Euro Motors.

b. What is the minimum price per unit that would be financially acceptable to Glide Ride?

OBJ. 2

✔ b. $25

EX 25-16 Product cost concept of product pricing

Mademoiselle Company produces women's handbags. The cost of producing 1,200 handbags is as follows:

Direct materials	$16,000
Direct labor	8,000
Factory overhead	6,000
Total manufacturing cost	$30,000

The selling and administrative expenses are $28,000. The management desires a profit equal to 16% of invested assets of $500,000.

a. Determine the amount of desired profit from the production and sale of 1,200 handbags.

b. Determine the product cost per unit for the production of 1,200 handbags.

c. Determine the product cost markup percentage for handbags.

d. Determine the selling price of handbags.

OBJ. 2

✔ d. $232

EX 25-17 Product cost concept of product costing

Voice Com, Inc., uses the product cost concept of applying the cost-plus approach to product pricing. The costs of producing and selling 5,000 units of cellular phones are as follows:

Variable costs:		Fixed costs:	
Direct materials	$ 80 per unit	Factory overhead	$200,000
Direct labor	36	Selling and admin. exp.	70,000
Factory overhead	24		
Selling and admin. exp.	20		
Total	$160 per unit		

Voice Com desires a profit equal to a 15% rate of return on invested assets of $600,000.

a. Determine the amount of desired profit from the production and sale of 5,000 units of cellular phones.

b. Determine the product cost and the cost amount per unit for the production of 5,000 units of cellular phones.

c. Determine the product cost markup percentage (rounded to two decimal places) for cellular phones.

d. Determine the selling price of cellular phones. Round to the nearest dollar.

OBJ. 2

EX 25-18 Target costing

Toyota Motor Corporation uses target costing. Assume that Toyota marketing personnel estimate that the competitive selling price for the Camry in the upcoming model year will need to be $24,000. Assume further that the Camry's total unit cost for the upcoming model year is estimated to be $19,800 and that Toyota requires a 20% profit margin on selling price (which is equivalent to a 25% markup on total cost).

a. What price will Toyota establish for the Camry for the upcoming model year?

b. What impact will target costing have on Toyota, given the assumed information?

OBJ. 2

✔ b. $16

EX 25-19 Target costing

Laser Impressions, Inc., manufactures color laser printers. Model J20 presently sells for $360 and has a total product cost of $288, as follows:

Direct materials	$218
Direct labor	50
Factory overhead	20
Total	$288

It is estimated that the competitive selling price for color laser printers of this type will drop to $340 next year. Laser Impressions has established a target cost to maintain its historical markup percentage on product cost. Engineers have provided the following cost reduction ideas:

1. Purchase a plastic printer cover with snap-on assembly, rather than with screws. This will reduce the amount of direct labor by 12 minutes per unit.
2. Add an inspection step that will add six minutes per unit of direct labor but reduce the materials cost by $7 per unit.
3. Decrease the cycle time of the injection molding machine from four minutes to three minutes per part. Forty percent of the direct labor and 42% of the factory overhead are related to running injection molding machines.

The direct labor rate is $25 per hour.

a. Determine the target cost for Model J20 assuming that the historical markup on product cost is maintained.

b. Determine the required cost reduction.

c. Evaluate the three engineering improvements together to determine if the required cost reduction (drift) can be achieved.

OBJ. 3

EX 25-20 Product decisions under bottlenecked operations

Eagle Alloys Inc. has three grades of metal product, Type 5, Type 10, and Type 20. Financial data for the three grades are as follows:

	Type 5	Type 10	Type 20
Revenues	$39,000	$41,000	$26,500
Variable cost	$25,000	$20,500	$13,500
Fixed cost	8,000	8,000	8,000
Total cost	$33,000	$28,500	$21,500
Income from operations	$ 6,000	$12,500	$ 5,000
Number of units	÷ 5,000	÷ 5,000	÷ 5,000
Income from operations per unit	$ 1.20	$ 2.50	$ 1.00

Eagle's operations require all three grades to be melted in a furnace before being formed. The furnace runs 24 hours a day, 7 days a week, and is a production bottleneck. The furnace hours required per unit of each product are as follows:

Type 5:	5 hours
Type 10:	10 hours
Type 20:	5 hours

The Marketing Department is considering a new marketing and sales campaign.

Which product should be emphasized in the marketing and sales campaign in order to maximize profitability?

OBJ. 3

✔ a. Total income from operations, $104,000

EX 25-21 Product decisions under bottlenecked operations

Pennsylvania Glass Company manufactures three types of safety plate glass: large, medium, and small. All three products have high demand. Thus, Pennsylvania Glass is able to sell all the safety glass that it can make. The production process includes an autoclave operation, which is a pressurized heat treatment. The autoclave is a production bottleneck. Total fixed costs are $85,000 for the company as a whole. In addition, the following information is available about the three products:

	Large	Medium	Small
Unit selling price	$140	$115	$100
Unit variable cost	110	94	88
Unit contribution margin	$ 30	$ 21	$ 12
Autoclave hours per unit	4	2	1
Total process hours per unit	8	6	3
Budgeted units of production	3,000	3,000	3,000

a. Determine the contribution margin by glass type and the total company income from operations for the budgeted units of production.

b. Prepare an analysis showing which product is the most profitable per bottleneck hour.

OBJ. 3

✔ Medium, $118

EX 25-22 Product pricing under bottlenecked operations

Based on the data presented in Exercise 25-21, assume that Pennsylvania Glass wanted to price all products so that they produced the same profit potential as the highest profit product. Thus, determine the prices for each of the products so that they would produce a profit equal to the highest profit product.

OBJ. 3

✔ Activity cost per stationary bicycle, $127.50

EX 25-23 Activity-based costing

HealthTec Equipment Company manufactures stationary bicycles and treadmills. The products are produced in the Fabrication and Assembly production departments. In addition to production activities, several other activities are required to produce the two products. These activities and their associated activity rates are as follows:

Activity	Activity Rate
Fabrication	$24 per machine hour (mh)
Assembly	$10 per direct labor hour (dlh)
Setup	$50 per setup
Inspecting	$24 per inspection
Production scheduling	$11 per production order
Purchasing	$8 per purchase order

The activity-base usage quantities and units produced for each product were as follows:

	Stationary Bicycle	Treadmill
Machine hours	1,820	1,070
Direct labor hours	443	172
Setups	52	16
Inspections	663	395
Production orders	60	12
Purchase orders	196	120
Units produced	540	360

Use the activity rate and usage information to compute the total activity costs and the activity costs per unit for each product.

OBJ. 4

✓ b. Custom, $168.50 per unit

EX 25-24 Activity-based costing

Hercules Industries manufactures two types of electrical power units, custom and standard, which involve four overhead activities—production setup, procurement, quality control, and materials management. An activity analysis of the overhead revealed the following estimated costs and activity bases for these activities:

Activity	Cost	Activity Base
Production setup	$ 64,000	Number of setups
Procurement	108,000	Number of purchase orders (PO)
Quality control	150,000	Number of inspections
Materials management	100,000	Number of components
Total	$422,000	

The activity-base usage quantities for each product are as follows:

	Setups	Purchase Orders	Inspections	Components	Unit Volume
Custom	350	900	1,800	300	2,000
Standard	150	100	200	200	2,000
Total	500	1,000	2,000	500	4,000

a. Determine an activity rate for each activity.

b. Assign activity costs to each product, and determine the unit activity cost using the activity rates from part (a).

c. Assume that each product required one direct labor hour per unit. Determine the per-unit cost if factory overhead is allocated on the basis of direct labor hours.

d. Explain why the answers in parts (b) and (c) are different.

OBJ. 4

✓ b. Dining room lighting fixtures, $50.48 per unit

EX 25-25 Activity rates and product costs using activity-based costing

Aglow Inc. manufactures entry and dining room lighting fixtures. Five activities are used in manufacturing the fixtures. These activities and their associated activity cost pools and activity bases are as follows:

Activity	Activity Cost Pool (Budgeted)	Activity Base
Casting	$266,000	Machine hours
Assembly	172,800	Direct labor hours
Inspecting	29,400	Number of inspections
Setup	37,800	Number of setups
Materials handling	39,900	Number of loads

Corporate records were obtained to estimate the amount of activity to be used by the two products. The estimated activity-base usage quantities and units produced are provided in the table below.

Activity Base	Entry	Dining	Total
Machine hours	5,000	4,500	9,500
Direct labor hours	4,300	6,500	10,800
Number of inspections	1,600	500	2,100
Number of setups	220	50	270
Number of loads	750	200	950
Units produced	10,000	5,000	15,000

a. Determine the activity rate for each activity.

b. Use the activity rates in (a) to determine the total and per-unit activity costs associated with each product.

✓ b. 8.41%

Appendix
EX 25-26 Total cost concept of product pricing

Based on the data presented in Exercise 25-17, assume that Voice Com, Inc., uses the total cost concept of applying the cost-plus approach to product pricing.

a. Determine the total costs and the total cost amount per unit for the production and sale of 5,000 units of cellular phones.

b. Determine the total cost markup percentage (rounded to two decimal places) for cellular phones.

c. Determine the selling price of cellular phones. Round to the nearest dollar.

✓ a. Cost amount per unit, $160

Appendix
EX 25-27 Variable cost concept of product pricing

Based on the data presented in Exercise 25-17, assume that Voice Com, Inc., uses the variable cost concept of applying the cost-plus approach to product pricing.

a. Determine the variable costs and the variable cost amount per unit for the production and sale of 5,000 units of cellular phones.

b. Determine the variable cost markup percentage for cellular phones.

c. Determine the selling price of cellular phones. Round to the nearest dollar.

Problems Series A

OBJ. 1

PR 25-1A Differential analysis involving opportunity costs

On August 1, Matrix Stores Inc. is considering leasing a building and purchasing the necessary equipment to operate a retail store. Alternatively, the company could use the funds to invest in $150,000 of 6% U.S. Treasury bonds that mature in 16 years. The bonds could be purchased at face value. The following data have been assembled:

Cost of store equipment	$150,000
Life of store equipment	16 years
Estimated residual value of store equipment	$18,000
Yearly costs to operate the store, excluding depreciation of store equipment	$56,000
Yearly expected revenues—years 1–8	$75,000
Yearly expected revenues—years 9–16	$70,000

Instructions

1. Prepare a differential analysis as of August 1, 2012, presenting the proposed operation of the store for the 16 years (Alternative 1) as compared with investing in U.S. Treasury bonds (Alternative 2).
2. Based on the results disclosed by the differential analysis, should the proposal be accepted?
3. If the proposal is accepted, what would be the total estimated income from operations of the store for the 16 years?

OBJ. 1

PR 25-2A Differential analysis for machine replacement proposal

Franklin Printing Company is considering replacing a machine that has been used in its factory for four years. Relevant data associated with the operations of the old machine and the new machine, neither of which has any estimated residual value, are as follows:

Old Machine	
Cost of machine, 10-year life	$108,000
Annual depreciation (straight-line)	10,800
Annual manufacturing costs, excluding depreciation	38,600
Annual nonmanufacturing operating expenses	12,300
Annual revenue	95,000
Current estimated selling price of machine	35,900

New Machine	
Cost of machine, six-year life	$138,000
Annual depreciation (straight-line)	23,000
Estimated annual manufacturing costs, exclusive of depreciation	18,200

Annual nonmanufacturing operating expenses and revenue are not expected to be affected by purchase of the new machine.

Instructions

1. Prepare a differential analysis as of February 29, 2012, comparing operations using the present equipment (Alternative 1) with operations using the new equipment (Alternative 2). The analysis should indicate the total differential income that would result over the six-year period if the new machine is acquired.
2. List other factors that should be considered before a final decision is reached.

OBJ. 1

✔ 1. Moisturizer income, $330,000

PR 25-3A Differential analysis for sales promotion proposal

L'Essence Cosmetics Company is planning a one-month campaign for June to promote sales of one of its two cosmetics products. A total of $150,000 has been budgeted for advertising, contests, redeemable coupons, and other promotional activities. The following data have been assembled for their possible usefulness in deciding which of the products to select for the campaign:

	Moisturizer	Perfume
Unit selling price	$50	$55
Unit production costs:		
Direct materials	$ 9	$12
Direct labor	3	4
Variable factory overhead	2	3
Fixed factory overhead	5	6
Total unit production costs	$19	$25
Unit variable selling expenses	16	15
Unit fixed selling expenses	9	5
Total unit costs	$44	$45
Operating income per unit	$ 6	$10

No increase in facilities would be necessary to produce and sell the increased output. It is anticipated that 24,000 additional units of moisturizer or 20,000 additional units of perfume could be sold without changing the unit selling price of either product.

Instructions

1. Prepare a differential analysis as of June 15, 2012, to determine whether to promote moisturizer (Alternative 1) or perfume (Alternative 2).
2. The sales manager had tentatively decided to promote perfume, estimating that operating income would be increased by $50,000 ($10 operating income per unit for 20,000 units, less promotion expenses of $150,000). The manager also believed that the selection of moisturizer would reduce operating income, ($6,000) ($6 operating income per unit for 24,000 units, less promotion expenses of $150,000). State briefly your reasons for supporting or opposing the tentative decision.

OBJ. 1

✔ 1. Raw sugar income, $16,200

PR 25-4A Differential analysis for further processing

The management of Jamaican Sugar Company is considering whether to process further raw sugar into refined sugar. Refined sugar can be sold for $2.15 per pound, and raw sugar can be sold without further processing for $1.20 per pound. Raw sugar is produced in batches of 36,000 pounds by processing 90,000 pounds of sugar cane, which costs $0.30 per pound of cane. Refined sugar will require additional processing costs of $0.45 per pound of raw sugar, and 1.2 pounds of raw sugar will produce 1 pound of refined sugar.

Instructions

1. Prepare a differential analysis as of January 30, 2012, to determine whether to sell raw sugar (Alternative 1) or process further into refined sugar (Alternative 2).
2. Briefly report your recommendations.

OBJ. 1,2, and Appendix

✔ 2. b. Markup percentage, 50%

PR 25-5A Product pricing using the cost-plus approach concepts; differential analysis for accepting additional business

Display Labs Inc. recently began production of a new product, flat panel displays, which required the investment of $1,800,000 in assets. The costs of producing and selling 9,000 units of flat panel displays are estimated as follows:

Variable costs per unit:		Fixed costs:	
Direct materials	$ 90	Factory overhead	$360,000
Direct labor	20	Selling and administrative expenses	180,000
Factory overhead	40		
Selling and administrative expenses	35		
Total	$185		

Display Labs Inc. is currently considering establishing a selling price for flat panel displays. The president of Display Labs has decided to use the cost-plus approach to product pricing and has indicated that the displays must earn a 20% rate of return on invested assets.

Instructions

1. Determine the amount of desired profit from the production and sale of flat panel displays.
2. Assuming that the product cost concept is used, determine (a) the cost amount per unit, (b) the markup percentage, and (c) the selling price of flat panel displays.
3. **Appendix** Assuming that the total cost concept is used, determine (a) the cost amount per unit, (b) the markup percentage (rounded to two decimal places), and (c) the selling price of flat panel displays (rounded to nearest whole dollar).
4. **Appendix** Assuming that the variable cost concept is used, determine (a) the cost amount per unit, (b) the markup percentage (rounded to two decimal places), and (c) the selling price of flat panel displays (rounded to nearest whole dollar).

(Continued)

5. Comment on any additional considerations that could influence establishing the selling price for flat panel displays.
6. Assume that as of August 1, 2012, 5,000 units of flat panel displays have been produced and sold during the current year. Analysis of the domestic market indicates that 4,000 additional units are expected to be sold during the remainder of the year at the normal product price determined under the product cost concept. On August 3, Display Labs Inc. received an offer from Video Systems Inc. for 1,500 units of flat panel displays at $225 each. Video Systems Inc. will market the units in Canada under its own brand name, and no selling and administrative expenses associated with the sale will be incurred by Display Labs Inc. The additional business is not expected to affect the domestic sales of flat panel displays, and the additional units could be produced using existing capacity.
    a. Prepare a differential analysis of the proposed sale to Video Systems Inc.
    b. Based on the differential analysis in part (a), should the proposal be accepted?

OBJ. 3

✔ 1. High Grade, $40

PR 25-6A Product pricing and profit analysis with bottleneck operations

Atlas Steel Company produces three grades of steel: high, good, and regular grade. Each of these products (grades) has high demand in the market, and Atlas is able to sell as much as it can produce of all three. The furnace operation is a bottleneck in the process and is running at 100% of capacity. Atlas wants to improve steel operation profitability. The variable conversion cost is $12 per process hour. The fixed cost is $410,000. In addition, the cost analyst was able to determine the following information about the three products:

	High Grade	Good Grade	Regular Grade
Budgeted units produced	5,000	5,000	5,000
Total process hours per unit	15	15	12
Furnace hours per unit	5	4	3
Unit selling price	$320	$290	$270
Direct materials cost per unit	$100	$105	$96

The furnace operation is part of the total process for each of these three products. Thus, for example, 5 of the 15 hours required to process High Grade steel are associated with the furnace.

Instructions

1. Determine the unit contribution margin for each product.
2. Provide an analysis to determine the relative product profitability, assuming that the furnace is a bottleneck.
3. Assume that management wishes to improve profitability by increasing prices on selected products. At what price would High and Good grades need to be offered in order to produce the same relative profitability as Regular Grade steel?

OBJ. 4

✔ 2. Brown sugar total activity cost, $328,950

PR 25-7A Activity-based costing

Hawaiian Sugar Company manufactures three products (white sugar, brown sugar, and powdered sugar) in a continuous production process. Senior management has asked the controller to conduct an activity-based costing study. The controller identified the amount of factory overhead required by the critical activities of the organization as follows:

Activity	Activity Cost Pool
Production	$468,000
Setup	168,000
Inspection	85,000
Shipping	144,000
Customer service	50,000
Total	$915,000

The activity bases identified for each activity are as follows:

Activity	Activity Base
Production	Machine hours
Setup	Number of setups
Inspection	Number of inspections
Shipping	Number of customer orders
Customer service	Number of customer service requests

The activity-base usage quantities and units produced for the three products were determined from corporate records and are as follows:

	Machine Hours	Number of Setups	Number of Inspections	Number of Customer Orders	Number of Customer Service Requests	Units
White sugar	3,200	100	200	800	40	8,000
Brown sugar	2,000	150	300	2,200	250	5,000
Powdered sugar	2,000	150	500	1,000	110	5,000
Total	7,200	400	1,000	4,000	400	18,000

Each product requires 0.4 machine hour per unit.

Instructions

1. Determine the activity rate for each activity.
2. Determine the total and per-unit activity costs for all three products.
3. Why aren't the activity unit costs equal across all three products since they require the same machine time per unit?

Problems Series B

OBJ. 1

PR 25-1B Differential analysis involving opportunity costs

On May 1, Interstate Distribution Company is considering leasing a building and buying the necessary equipment to operate a public warehouse. Alternatively, the company could use the funds to invest in $800,000 of 5% U.S. Treasury bonds that mature in 14 years. The bonds could be purchased at face value. The following data have been assembled:

Cost of equipment	$800,000
Life of equipment	14 years
Estimated residual value of equipment	$75,000
Yearly costs to operate the warehouse, excluding depreciation of equipment	$200,000
Yearly expected revenues—years 1–7	$325,000
Yearly expected revenues—years 8–14	$275,000

Instructions

1. Prepare a differential analysis as of May 1, 2012, presenting the proposed operation of the warehouse for the 14 years (Alternative 1) as compared with investing in U.S. Treasury bonds (Alternative 2).
2. Based on the results disclosed by the differential analysis, should the proposal be accepted?
3. If the proposal is accepted, what is the total estimated income from operations of the warehouse for the 14 years?

OBJ. 1

PR 25-2B Differential analysis for machine replacement proposal

Saginaw Tooling Company is considering replacing a machine that has been used in its factory for two years. Relevant data associated with the operations of the old machine and the new machine, neither of which has any estimated residual value, are as follows:

Old Machine	
Cost of machine, eight-year life	$44,000
Annual depreciation (straight-line)	5,500
Annual manufacturing costs, excluding depreciation	16,300
Annual nonmanufacturing operating expenses	3,100
Annual revenue	29,600
Current estimated selling price of the machine	21,000

New Machine	
Cost of machine, six-year life	$72,000
Annual depreciation (straight-line)	12,000
Estimated annual manufacturing costs, exclusive of depreciation	5,900

Annual nonmanufacturing operating expenses and revenue are not expected to be affected by purchase of the new machine.

Instructions

1. Prepare a differential analysis as of September 10, 2012, comparing operations using the present equipment (Alternative 1) with operations using the new equipment (Alternative 2). The analysis should indicate the differential income that would result over the six-year period if the new machine is acquired.
2. List other factors that should be considered before a final decision is reached.

OBJ. 1

✔ 1. Income, tennis shoe, $230,000

PR 25-3B Differential analysis for sales promotion proposal

Sole Mates Inc. is planning a one-month campaign for May to promote sales of one of its two shoe products. A total of $130,000 has been budgeted for advertising, contests, redeemable coupons, and other promotional activities. The following data have been assembled for their possible usefulness in deciding which of the products to select for the campaign.

	Tennis Shoe	Walking Shoe
Unit selling price	$120	$92
Unit production costs:		
Direct materials	$ 24	$20
Direct labor	10	9
Variable factory overhead	6	5
Fixed factory overhead	14	12
Total unit production costs	$ 54	$46
Unit variable selling expenses	8	6
Unit fixed selling expenses	20	15
Total unit costs	$ 82	$67
Operating income per unit	$ 38	$25

No increase in facilities would be necessary to produce and sell the increased output. It is anticipated that 5,000 additional units of tennis shoes or 7,000 additional units of walking shoes could be sold without changing the unit selling price of either product.

Instructions

1. Prepare a differential analysis as of May 13, 2012, to determine whether to promote tennis shoes (Alternative 1) or walking shoes (Alternative 2).
2. The sales manager had tentatively decided to promote tennis shoes, estimating that operating income would be increased by $60,000 ($38 operating income per unit for 5,000 units, less promotion expenses of $130,000). The manager also believed that the selection of walking shoes would increase operating income by $45,000 ($25 operating income per unit for 7,000 units, less promotion expenses of $130,000). State briefly your reasons for supporting or opposing the tentative decision.

OBJ. 1

✔ 1. Ingot income, $36,000

PR 25-4B Differential analysis for further processing

The management of Pittsburgh Aluminum Co. is considering whether to process aluminum ingot further into rolled aluminum. Rolled aluminum can be sold for $1,800 per ton, and ingot can be sold without further processing for $1,000 per ton. Ingot is produced in batches of 72 tons by smelting 400 tons of bauxite, which costs $90 per ton of bauxite. Rolled aluminum will require additional processing costs of $525 per ton of ingot, and 1.2 tons of ingot will produce 1 ton of rolled aluminum (due to trim losses).

Instructions

1. Prepare a differential analysis as of December 20, 2012, to determine whether to sell aluminum ingot (Alternative 1) or process further into rolled aluminum (Alternative 2).
2. Briefly report your recommendations.

OBJ. 1,2, and Appendix

✔ 2. b. Markup percentage, 34.69%

PR 25-5B Product pricing using the cost-plus approach concepts; differential analysis for accepting additional business

Safety Systems, Inc., recently began production of a new product, the halogen light, which required the investment of $600,000 in assets. The costs of producing and selling 10,000 halogen lights are estimated as follows:

Variable costs per unit:		Fixed costs:	
Direct materials	$24	Factory overhead	$100,000
Direct labor	10	Selling and administrative expenses	50,000
Factory overhead	5		
Selling and administrative expenses	6		
Total	$45		

Safety Systems, Inc., is currently considering establishing a selling price for the halogen light. The president of Safety Systems, Inc., has decided to use the cost-plus approach to product pricing and has indicated that the halogen light must earn a 10% rate of return on invested assets.

Instructions

1. Determine the amount of desired profit from the production and sale of the halogen light.
2. Assuming that the product cost concept is used, determine (a) the cost amount per unit, (b) the markup percentage (rounded to two decimal places), and (c) the selling price of the halogen light (rounded to nearest whole dollar).
3. **Appendix** Assuming that the total cost concept is used, determine (a) the cost amount per unit, (b) the markup percentage, and (c) the selling price of the halogen light.
4. **Appendix** Assuming that the variable cost concept is used, determine (a) the cost amount per unit, (b) the markup percentage (rounded to two decimal places), and (c) the selling price of the halogen light (rounded to nearest whole dollar).
5. Comment on any additional considerations that could influence establishing the selling price for the halogen light.
6. Assume that as of September 1, 2012, 7,000 units of halogen light have been produced and sold during the current year. Analysis of the domestic market indicates that 3,000 additional units of the halogen light are expected to be sold during the remainder of the year at the normal product price determined under the product cost concept. On September 5, Safety Systems, Inc., received an offer from International Lighting Inc. for 2,000 units of the halogen light at $42 each. International Lighting Inc. will market the units in Japan under its own brand name, and no selling and administrative expenses associated with the sale will be incurred by Safety Systems, Inc. The additional business is not expected to affect the domestic sales of the halogen light, and the additional units could be produced using existing capacity.
   a. Prepare a differential analysis of the proposed sale to International Lighting Inc.
   b. Based on the differential analysis in part (a), should the proposal be accepted?

OBJ. 3

✔ 1. Ethylene, $24

PR 25-6B Product pricing and profit analysis with bottleneck operations

Dover Chemical Company produces three products: ethylene, butane, and ester. Each of these products has high demand in the market, and Dover Chemical is able to sell as much as it can produce of all three. The reaction operation is a bottleneck in the process and is running at 100% of capacity. Dover wants to improve chemical operation profitability. The variable conversion cost is $8 per process hour. The fixed cost is $550,000. In addition, the cost analyst was able to determine the following information about the three products:

	Ethylene	Butane	Ester
Budgeted units produced	9,000	9,000	9,000
Total process hours per unit	3	3	2
Reactor hours per unit	0.75	0.5	1.0
Unit selling price	$165	$132	$128
Direct materials cost per unit	$117	$88	$85

The reaction operation is part of the total process for each of these three products. Thus, for example, 1.0 of the 3 hours required to process ethylene is associated with the reactor.

Instructions

1. Determine the unit contribution margin for each product.
2. Provide an analysis to determine the relative product profitabilities, assuming that the reactor is a bottleneck.
3. Assume that management wishes to improve profitability by increasing prices on selected products. At what price would ethylene and ester need to be offered in order to produce the same relative profitability as butane?

OBJ. 4

✔ 2. Newsprint total activity cost, $282,725

PR 25-7B Activity-based costing

Gwinnett Paper Company manufactures three products (computer paper, newsprint, and specialty paper) in a continuous production process. Senior management has asked the controller to conduct an activity-based costing study. The controller identified the amount of factory overhead required by the critical activities of the organization as follows:

Activity	Activity Cost Pool
Production	$ 495,000
Setup	225,000
Moving	29,750
Shipping	126,000
Product engineering	150,000
Total	$1,025,750

The activity bases identified for each activity are as follows:

Activity	Activity Base
Production	Machine hours
Setup	Number of setups
Moving	Number of moves
Shipping	Number of customer orders
Product engineering	Number of test runs

The activity-base usage quantities and units produced for the three products were determined from corporate records and are as follows:

	Machine Hours	Number of Setups	Number of Moves	Number of Customer Orders	Number of Test Runs	Units
Computer paper	900	130	290	440	90	1,000
Newsprint	1,125	60	130	135	20	1,250
Specialty paper	450	310	430	625	140	500
Total	2,475	500	850	1,200	250	2,750

Each product requires 0.9 machine hour per unit.

Instructions

1. Determine the activity rate for each activity.
2. Determine the total and per-unit activity cost for all three products.
3. Why aren't the activity unit costs equal across all three products since they require the same machine time per unit?

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

SA 25-1 Lease or sell

On April 4, 2012, Lane Company is considering leasing or selling equipment with an original cost of $150,000 and a current book value of $110,000. Lane can lease this equipment over six years for total estimated revenue of $220,000 and estimated property tax and insurance expenses of $140,000. Alternatively, Lane could sell the equipment for $76,000 less a 5% sales commission.

a. Open the Excel file *SA25-1_2e.*

b. Prepare a differential analysis based on the example shown in the chapter.

c. When you have completed the analysis, perform a "save as," replacing the entire file name with the following:

SA25-1_2e[your first name initial]_[your last name]

SA 25-2 Make or buy

V-Systems manufactures electronic test equipment. The test equipment uses an integrated circuit (IC) that can be purchased from an outside supplier for $46 per unit plus $4 per unit freight. Alternatively, the integrated circuit can be manufactured for $68 per unit, including variable costs of $42 per unit and fixed costs of $26 per unit. The fixed costs cannot be avoided by purchasing the part.

a. Open the Excel file *SA25-2_2e.*

b. Prepare a differential analysis based on the example shown in the chapter.

c. When you have completed the analysis, perform a "save as," replacing the entire file name with the following:

SA25-2_2e[your first name initial]_[your last name]

SA 23-3 Continue or replace equipment

Carlisle Company has a machine with a book value of $59,000 and a five-year remaining life. A proposal is offered to sell the machine for $65,000 and replace it with a new machine at a cost of $73,000. The new machine would have a five-year life. If replaced, the new machine would reduce annual energy costs from $7,000 to $4,000 per year and increase annual property taxes from $900 to $1,400 per year.

a. Open the Excel file *SA25-3_2e.*

b. Prepare a differential analysis based on the example shown in the chapter.

c. When you have completed the analysis, perform a "save as", replacing the entire file name with the following:

SA25-3_2e[your first name initial]_[your last name]

excel success

SA 23-4 Sell or process further

Norris Company produces ester for $4.90 per pound. Ester can be sold without additional processing for $8.00 per pound, or processed further into polyester at an additional total cost of $1.10 per pound. Polyester can be sold for $9.00 per pound.

a. Open the Excel file *SA25-4_2e.*

b. Prepare a differential analysis based on the example shown in the chapter.

c. When you have completed the analysis, perform a "save as," replacing the entire file name with the following:

SA25-4_2e[your first name initial]_[your last name]

CHAPTER 26

vsFoto/Figure at Sea/AP Photos Publicity

Capital Investment Analysis

Carnival Corporation

Why are you paying tuition, studying this text, and spending time and money on a higher education? Most people believe that the money and time spent now will return them more earnings in the future. In other words, the cost of higher education is an investment in your future earning ability. How would you know if this investment is worth it?

One method would be for you to compare the cost of a higher education against the estimated increase in your future earning power. The bigger the difference between your expected future earnings and the cost of your education, the better the investment. A business also evaluates its investments in fixed assets by comparing the initial cost of the investment to its future earnings and cash flows.

For example, **Carnival Corporation** is the largest vacation cruise company in the world, with over 90 cruise ships that sail to locations around the world. Carnival's fleet required an investment of nearly $35 billion, with each new ship costing approximately $600 million. In deciding to build more ships, Carnival compares the cost of a ship with its future earnings and cash flows over its 30-year expected life. Carnival must be satisfied with its investments, because the company has signed agreements with shipyards to add an additional 13 cruise ships to its fleet from 2010–2012.

In this chapter, the methods used to make investment decisions, which may involve thousands, millions, or even billions of dollars, are described and illustrated. The similarities and differences among the most commonly used methods of evaluating investment proposals, as well as the benefits of each method, are emphasized. Factors that can complicate the analysis are also discussed.

Learning Objectives

After studying this chapter, you should be able to:	Example Exercises		Page
OBJ. 1 Explain the nature and importance of capital investment analysis.			
Nature of Capital Investment Analysis			
OBJ. 2 Evaluate capital investment proposals using the average rate of return and cash payback methods.			
Methods Not Using Present Values			
Average Rate of Return Method	EE 26-1		1212
Cash Payback Method	EE 26-2		1213
OBJ. 3 Evaluate capital investment proposals using the net present value and internal rate of return methods.			
Methods Using Present Values			
Present Value Concepts			
Net Present Value Method	EE 26-3	excel success	1219
Internal Rate of Return Method	EE 26-4	excel success	1222
OBJ. 4 List and describe factors that complicate capital investment analysis.			
Factors That Complicate Capital Investment Analysis			
Income Tax			
Unequal Proposal Lives	EE 26-5		1223
Lease versus Capital Investment			
Uncertainty			
Changes in Price Levels			
Qualitative Considerations			
OBJ. 5 Diagram the capital rationing process.			
Capital Rationing			

At a Glance 26 Page 1228

OBJ. 1 Explain the nature and importance of capital investment analysis.

Nature of Capital Investment Analysis

The Walt Disney Company committed over $1 billion of capital investment to expand Disney's California Adventure theme park, including new attractions: *Toy Story Mania* (2008), *Mickey's Fun Wheel* (2009), *World of Color* (2010), and *Ariel's Undersea Adventure* (2011).

Companies use capital investment analysis to evaluate long-term investments. **Capital investment analysis** (or *capital budgeting*) is the process by which management plans, evaluates, and controls investments in fixed assets. Capital investments use funds and affect operations for many years and must earn a reasonable rate of return. Thus, capital investment decisions are some of the most important decisions that management makes.

Capital investment evaluation methods can be grouped into the following categories:

Methods That Do Not Use Present Values

1. Average rate of return method
2. Cash payback method

Methods That Use Present Values

1. Net present value method
2. Internal rate of return method

The two methods that use present values consider the time value of money. The **time value of money concept** recognizes that a dollar today is worth more than a dollar tomorrow because today's dollar can earn interest.

OBJ. 2 Evaluate capital investment proposals using the average rate of return and cash payback methods.

Methods Not Using Present Values

The methods not using present values are often useful in evaluating capital investment proposals that have relatively short useful lives. In such cases, the timing of the cash flows (the time value of money) is less important.

Since the methods not using present values are easy to use, they are often used to screen proposals. Minimum standards for accepting proposals are set, and proposals not meeting these standards are dropped. If a proposal meets the minimum standards, it may be subject to further analysis using the present value methods.

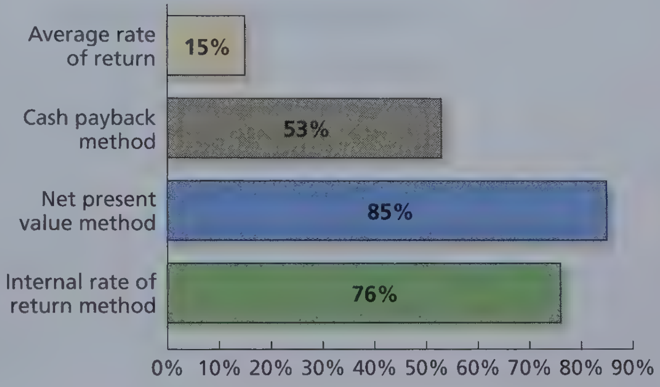
Average Rate of Return Method

The **average rate of return**, sometimes called the *accounting rate of return*, measures the average income as a percent of the average investment. The average rate of return is computed as follows:

$$\text{Average Rate of Return} = \frac{\text{Estimated Average Annual Income}}{\text{Average Investment}}$$

A CFO survey of capital investment analysis methods used by large U.S. companies reported the following:

Percentage of Respondents Reporting the Use of the Method as "Always" or "Often"



Source: Patricia A. Ryan and Glenn P. Ryan, "Capital Budgeting Practice of the Fortune 1000: How Have Things Changed?" *Journal of Business and Management* (Winter 2002).

In the preceding equation, the numerator is the average of the annual income expected to be earned from the investment over its life, after deducting depreciation. The denominator is the average investment (book value) over the life of the investment. Assuming straight-line depreciation, the average investment is computed as follows:

$$\text{Average Investment} = \frac{\text{Initial Cost} + \text{Residual Value}}{2}$$

To illustrate, assume that management is evaluating the purchase of a new machine as follows:

Cost of new machine	$500,000
Residual value	0
Estimated total income from machine	200,000
Expected useful life	4 years

The average estimated annual income from the machine is $50,000 ($200,000/4 years). The average investment is $250,000, as computed below.

$$\text{Average Investment} = \frac{\text{Initial Cost} + \text{Residual Value}}{2} = \frac{\$500{,}000 + \$0}{2} = \$250{,}000$$

The average rate of return on the average investment is 20%, as computed below.

$$\text{Average Rate of Return} = \frac{\text{Estimated Average Annual Income}}{\text{Average Investment}} = \frac{\$50{,}000}{\$250{,}000} = 20\%$$

The average rate of return of 20% should be compared to the minimum rate of return required by management. If the average rate of return equals or exceeds the minimum rate, the machine should be purchased or considered for further analysis.

Several capital investment proposals can be ranked by their average rates of return. The higher the average rate of return, the more desirable the proposal.

The average rate of return has the following three advantages:

1. It is easy to compute.
2. It includes the entire amount of income earned over the life of the proposal.
3. It emphasizes accounting income, which is often used by investors and creditors in evaluating management performance.

The average rate of return has the following two disadvantages:

1. It does not directly consider the expected cash flows from the proposal.
2. It does not directly consider the timing of the expected cash flows.

Note:

The average rate of return method considers the amount of income earned over the life of a proposal.

Example Exercise 26-1 Average Rate of Return

OBJ 2

Determine the average rate of return for a project that is estimated to yield total income of $273,600 over three years, has a cost of $690,000, and has a $70,000 residual value.

Follow My Example 26-1

Estimated average annual income	$91,200 ($273,600/3 years)
Average investment	$380,000 ($690,000 + $70,000)/2
Average rate of return	24% ($91,200/$380,000)

Practice Exercises: **PE 26-1A, PE 26-1B**

Cash Payback Method

A capital investment uses cash and must return cash in the future to be successful. The expected period of time between the date of an investment and the recovery in cash of the amount invested is the **cash payback period**.

When annual net cash inflows are equal, the cash payback period is computed as follows:

$$\text{Cash Payback Period} = \frac{\text{Initial Cost}}{\text{Annual Net Cash Inflow}}$$

To illustrate, assume that management is evaluating the purchase of the following new machine:

Cost of new machine	$200,000
Cash revenues from machine per year	50,000
Expenses of machine per year	30,000
Depreciation per year	20,000

To simplify, the revenues and expenses other than depreciation are assumed to be in cash. Hence, the net cash inflow per year from use of the machine is as follows:

Net cash inflow per year:		
Cash revenues from machine		$50,000
Less cash expenses of machine		
Expenses of machine	$30,000	
Less depreciation	20,000	10,000
Net cash inflow per year		$40,000

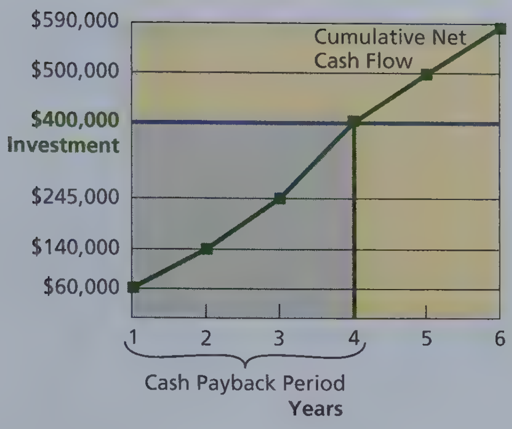
The time required for the net cash flow to equal the cost of the new machine is the payback period. Thus, the estimated cash payback period for the investment is five years, as computed below.

$$\text{Cash Payback Period} = \frac{\text{Initial Cost}}{\text{Annual Net Cash Inflow}} = \frac{\$200{,}000}{\$40{,}000} = 5 \text{ years}$$

In the preceding illustration, the annual net cash inflows are equal ($40,000 per year). When the annual net cash inflows are not equal, the cash payback period is determined by adding the annual net cash inflows until the cumulative total equals the initial cost of the proposed investment.

To illustrate, assume that a proposed investment has an initial cost of $400,000. The annual and cumulative net cash inflows over the proposal's six-year life are as follows:

Year	Net Cash Flow	Cumulative Net Cash Flow
1	$ 60,000	$ 60,000
2	80,000	140,000
3	105,000	245,000
4	155,000	400,000
5	100,000	500,000
6	90,000	590,000



The cumulative net cash flow at the end of Year 4 equals the initial cost of the investment, $400,000. Thus, the payback period is four years.

If the initial cost of the proposed investment had been $450,000, the cash payback period would occur during Year 5. Since $100,000 of net cash flow is expected during Year 5, the additional $50,000 to increase the cumulative total to $450,000 occurs halfway through the year ($50,000/$100,000). Thus, the cash payback period would be 4½ years.[1]

A short cash payback period is desirable. This is because the sooner cash is recovered, the sooner it can be reinvested in other projects. In addition, there is less chance of losses from changing economic or business conditions. A short cash payback period is also desirable for quickly repaying any debt used to purchase the investment.

The cash payback method has the following two advantages:

1. It is simple to use and understand.
2. It analyzes cash flows.

The cash payback method has the following two disadvantages:

1. It ignores cash flows occurring after the payback period.
2. It does not use present value concepts in valuing cash flows occurring in different periods.

Example Exercise 26-2 Cash Payback Period Obj. 2

A project has estimated annual net cash flows of $30,000. It is estimated to cost $105,000. Determine the cash payback period.

Follow My Example 26-2

3.5 years ($105,000/$30,000)

Practice Exercises: **PE 26-2A, PE 26-2B**

Methods Using Present Values

Obj. 3 Evaluate capital investment proposals using the net present value and internal rate of return methods.

An investment in fixed assets may be viewed as purchasing a series of net cash flows over a period of time. The timing of when the net cash flows will be received is important in determining the value of a proposed investment.

Present value methods use the amount and timing of the net cash flows in evaluating an investment. The two methods of evaluating capital investments using present values are as follows:

1. Net present value method
2. Internal rate of return method

---

[1] Unless otherwise stated, net cash inflows are received uniformly throughout the year.

Present Value Concepts

Both the net present value and the internal rate of return methods use the following two **present value concepts**:

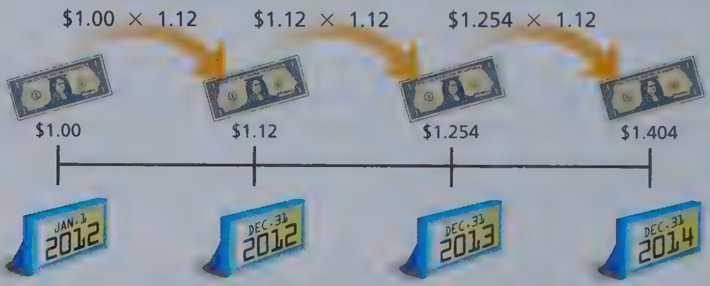
1. Present value of an amount
2. Present value of an annuity

Present Value of an Amount If you were given the choice, would you prefer to receive $1 now or $1 three years from now? You should prefer to receive $1 now, because you could invest the $1 and earn interest for three years. As a result, the amount you would have after three years would be greater than $1.

To illustrate, assume that you have $1 to invest as follows:

Amount to be invested	$1
Period to be invested	3 years
Interest rate	12%

After one year, the $1 earns interest of $0.12 ($1 × 12%) and, thus, will grow to $1.12 ($1 × 1.12). In the second year, the $1.12 earns 12% interest of $0.134 ($1.12 × 12%) and, thus, will grow to $1.254 ($1.12 × 1.12) by the end of the second year. This process of interest earning interest is called *compounding*. By the end of the third year, your $1 investment will grow to $1.404 as shown below.



On January 1, 2012, what is the present value of $1.404 to be received on December 31, 2014? This is a present value question. The answer can be determined with the aid of a present value of $1 table. For example, the partial table in Exhibit 1 indicates that the present value of $1 to be received in three years with earnings compounded at the rate of 12% per year is 0.712.[2] Multiplying 0.712 by $1.404 yields $1 as follows:

Present Value		Amount to Be Received in 3 Years		Present Value of $1 to Be Received in 3 Years (from Exhibit 1)
$1	=	$1.404	×	0.712

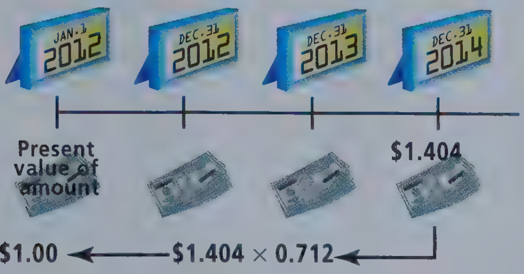
EXHIBIT 1

Partial Present Value of $1 Table

Present Value of $1 at Compound Interest					
Year	**6%**	**10%**	**12%**	**15%**	**20%**
1	0.943	0.909	0.893	0.870	0.833
2	0.890	0.826	0.797	0.756	0.694
3	0.840	0.751	0.712	0.658	0.579
4	0.792	0.683	0.636	0.572	0.482
5	0.747	0.621	0.567	0.497	0.402
6	0.705	0.564	0.507	0.432	0.335
7	0.665	0.513	0.452	0.376	0.279
8	0.627	0.467	0.404	0.327	0.233
9	0.592	0.424	0.361	0.284	0.194
10	0.558	0.386	0.322	0.247	0.162

[2] The present value factors in the table are rounded to three decimal places. More complete tables of present values are in Appendix A.

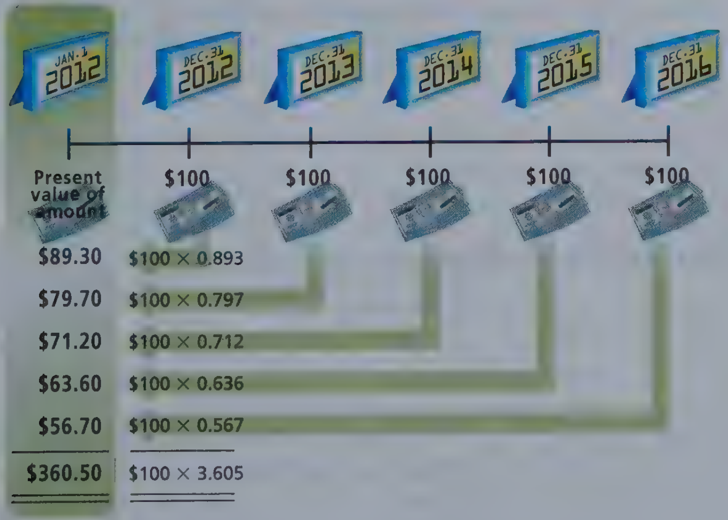
That is, the present value of $1.404 to be received in three years using a compound interest rate of 12% is $1, as shown below.



Present Value of an Annuity An **annuity** is a series of equal net cash flows at fixed time intervals. Annuities are very common in business. Cash payments for monthly rent, salaries, and bond interest are all examples of annuities.

The present value of an annuity is the sum of the present values of each cash flow. That is, the **present value of an annuity** is the amount of cash needed today to yield a series of equal net cash flows at fixed time intervals in the future.

To illustrate, the present value of a $100 annuity for five periods at 12% could be determined by using the present value factors in Exhibit 1. Each $100 net cash flow could be multiplied by the present value of $1 at a 12% factor for the appropriate period and summed to determine a present value of $360.50, as shown below.



Using a present value of an annuity table is a simpler approach. Exhibit 2 is a partial table of present value annuity factors.[3]

The present value factors in the table shown in Exhibit 2 are the sum of the present value of $1 factors in Exhibit 1 for the number of annuity periods. Thus, 3.605 in the annuity table (Exhibit 2) is the sum of the five present value of $1 factors at 12%, as shown on the following page.

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[3] The present value factors in the table are rounded to three decimal places. More complete tables of present values are in Appendix A.

EXHIBIT 2

Partial Present Value of an Annuity Table

	Present Value of an Annuity of $1 at Compound Interest				
Year	**6%**	**10%**	**12%**	**15%**	**20%**
1	0.943	0.909	0.893	0.870	0.833
2	1.833	1.736	1.690	1.626	1.528
3	2.673	2.487	2.402	2.283	2.106
4	3.465	3.170	3.037	2.855	2.589
5	4.212	3.791	3.605	3.353	2.991
6	4.917	4.355	4.111	3.785	3.326
7	5.582	4.868	4.564	4.160	3.605
8	6.210	5.335	4.968	4.487	3.837
9	6.802	5.759	5.328	4.772	4.031
10	7.360	6.145	5.650	5.019	4.192

	Present Value of $1 (Exhibit 1)
Present value of $1 for 1 year @12%	0.893
Present value of $1 for 2 years @12%	0.797
Present value of $1 for 3 years @12%	0.712
Present value of $1 for 4 years @12%	0.636
Present value of $1 for 5 years @12%	0.567
Present value of an annuity of $1 for 5 years (from Exhibit 2)	3.605

Multiplying $100 by 3.605 yields the same amount ($360.50) as follows:

Present Value		Amount to Be Received Annually for 5 Years		Present Value of an Annuity of $1 to Be Received for 5 Years (Exhibit 2)
$360.50	=	$100	×	3.605

This is the same amount ($360.50) that was determined in the preceding illustration by five successive multiplications.

A 55-year-old janitor won a $5 million lottery jackpot, payable in 21 annual installments of $240,245. Unfortunately, the janitor died after collecting only one payment. What happens to the remaining unclaimed payments? In this case, the lottery winnings were auctioned off for the benefit of the janitor's estate. The winning bid approximated the present value of the remaining cash flows, or about $2.1 million.

Net Present Value Method

The **net present value method** compares the amount to be invested with the present value of the net cash inflows. It is sometimes called the *discounted cash flow method.*

The interest rate (return) used in net present value analysis is the company's minimum desired rate of return. This rate, sometimes termed the *hurdle rate,* is based on such factors as the purpose of the investment and the cost of obtaining funds for the investment. If the present value of the cash inflows equals or exceeds the amount to be invested, the proposal is desirable.

To illustrate, assume the following data for a proposed investment in new equipment:

Cost of new equipment	$200,000
Expected useful life	5 years
Minimum desired rate of return	10%
Expected cash flows to be received each year:	
Year 1	$ 70,000
Year 2	60,000
Year 3	50,000
Year 4	40,000
Year 5	40,000
Total expected cash flows	$260,000

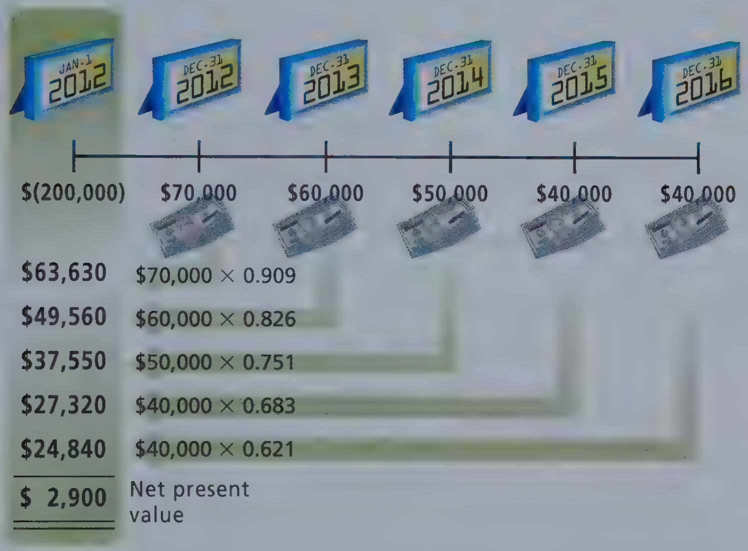
Note:

The net present value method compares an investment's initial cash outflow with the present value of its cash inflows.

The present value of the net cash flow for each year is computed by multiplying the net cash flow for the year by the present value factor of $1 for that year as shown below.

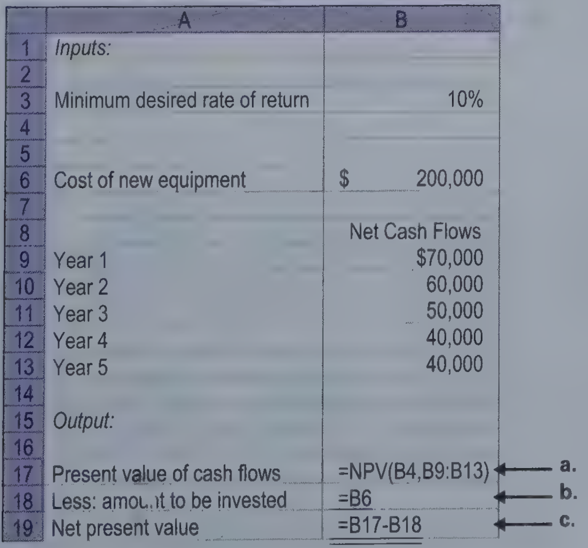
Year	Present Value of $1 at 10%	Net Cash Flow	Present Value of Net Cash Flow
1	0.909	$ 70,000	$ 63,630
2	0.826	60,000	49,560
3	0.751	50,000	37,550
4	0.683	40,000	27,320
5	0.621	40,000	24,840
Total		$260,000	$202,900
Amount to be invested			200,000
Net present value			$ 2,900

The preceding computations are also graphically illustrated below.



excel success

Spreadsheet software can be used to determine the net present value of a project using a specialized function, illustrated as follows:



	A	B	
1	*Inputs:*		
2			
3	Minimum desired rate of return	10%	
4			
5			
6	Cost of new equipment	$ 200,000	
7			
8		Net Cash Flows	
9	Year 1	$70,000	
10	Year 2	60,000	
11	Year 3	50,000	
12	Year 4	40,000	
13	Year 5	40,000	
14			
15	*Output:*		
16			
17	Present value of cash flows	=NPV(B4,B9:B13)	a.
18	Less: amount to be invested	=B6	b.
19	Net present value	=B17-B18	c.

The inputs include the minimum desired rate of return, cost of the new equipment (amount to be invested), and the end of each year net cash flows expected from the project.

The outputs consist of the following three steps:

a. Enter in B17 the formula for calculating the present value of the net cash flows of the project using the =NPV function as follows,

=NPV(B3,B9:B13)

Cell for the minimum desired rate of return

Cell range for the net cash flows

b. Enter in cell B18 the cell reference for the cost of the equipment (amount to be invested), B6.

c. Enter in cell B19 the difference between the net present value of cash flows and amount to be invested, =B17-B18. In your spreadsheet the net present value will calculate to $2,946. The amount shown in the text, $2,900, is rounded.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

The net present value of $2,900 indicates that the purchase of the new equipment is expected to recover the investment and provide more than the minimum rate of return of 10%. Thus, the purchase of the new equipment is desirable.

When capital investment funds are limited and the proposals involve different investments, a ranking of the proposals can be prepared by using a present value index. The **present value index** is computed as follows:

$$\text{Present Value Index} = \frac{\text{Total Present Value of Net Cash Flow}}{\text{Amount to Be Invested}}$$

The present value index for the investment in the preceding illustration is 1.0145, as computed below.

$$\text{Present Value Index} = \frac{\text{Total Present Value of Net Cash Flow}}{\text{Amount to Be Invested}}$$

$$\text{Present Value Index} = \frac{\$202{,}900}{\$200{,}000} = 1.0145$$

Assume that a company is considering three proposals. The net present value and the present value index for each proposal are as follows:

	Proposal A	**Proposal B**	**Proposal C**
Total present value of net cash flow	$107,000	$86,400	$86,400
Amount to be invested	100,000	80,000	90,000
Net present value	$ 7,000	$ 6,400	$ (3,600)
Present value index:			
Proposal A ($107,000/$100,000)	1.07		
Proposal B ($86,400/$80,000)		1.08	
Proposal C ($86,400/$90,000)			0.96

A project will have a present value index greater than 1 when the net present value is positive. This is the case for Proposals A and B. When the net present value is negative, the present value index will be less than 1, as is the case for Proposal C.

The use of spreadsheet software such as Microsoft Excel can simplify present value computations.

Although Proposal A has the largest net present value, the present value indices indicate that it is not as desirable as Proposal B. That is, Proposal B returns $1.08 present value per dollar invested, whereas Proposal A returns only $1.07. Proposal B requires an investment of $80,000, compared to an investment of $100,000 for Proposal A. The possible use of the $20,000 difference between Proposals A and B investments should also be considered before making a final decision.

The net present value method has the following three advantages:

1. It considers the cash flows of the investment.
2. It considers the time value of money.
3. It can rank equal lived projects using the present value index.

The net present value method has the following two disadvantages:

1. It has more complex computations than methods that don't use present value.
2. It assumes the cash flows can be reinvested at the minimum desired rate of return, which may not be valid.

Example Exercise 26-3 Net Present Value

OBJ. 3

A project has estimated annual net cash flows of $50,000 for seven years and is estimated to cost $240,000. Assume a minimum acceptable rate of return of 12%. Using Exhibit 2 on page 1216, determine (a) the net present value of the project and (b) the present value index, rounded to two decimal places.

Follow My Example 26-3

a.	($11,800)	[($50,000 × 4.564) – $240,000]
b.	0.95	($228,200/$240,000)

Practice Exercises: **PE 26-3A, PE 26-3B**

Internal Rate of Return Method

The **internal rate of return (IRR) method** uses present value concepts to compute the rate of return from a capital investment proposal based on its expected net cash flows. This method, sometimes called the *time-adjusted rate of return method*, starts with the proposal's net cash flows and works backward to estimate the proposal's expected rate of return.

To illustrate, assume that management is evaluating the following proposal to purchase new equipment:

Cost of new equipment	$33,530
Yearly expected cash flows to be received	10,000
Expected life	5 years
Minimum desired rate of return	12%

The present value of the net cash flows, using the present value of an annuity table in Exhibit 2 on page 1216, is $2,520, as shown in Exhibit 3.

In Exhibit 3, the $36,050 present value of the cash inflows, based on a 12% rate of return, is greater than the $33,530 to be invested. Thus, the internal rate of return must be greater than 12%. Through trial and error, the rate of return equating the $33,530 cost of the investment with the present value of the net cash flows can be determined to be 15%, as shown below.

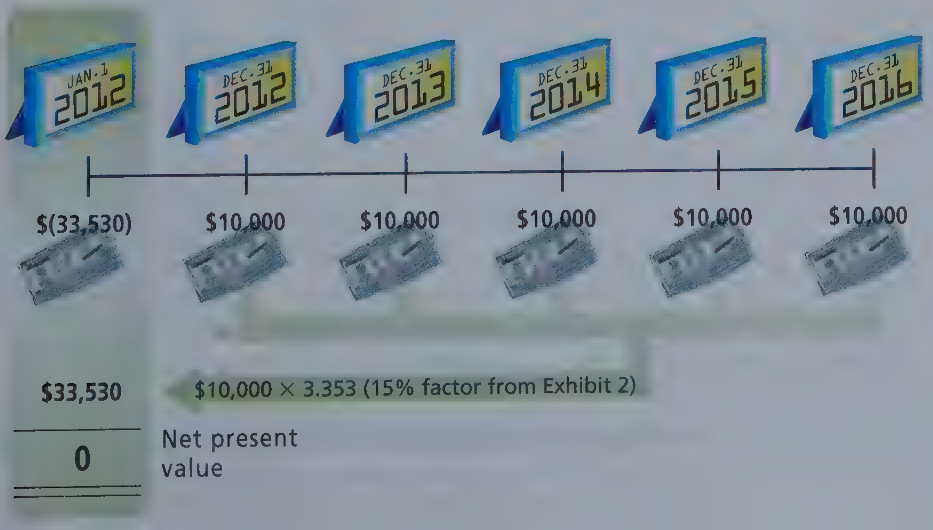


EXHIBIT 3

Net Present Value Analysis at 12%

Annual net cash flow (at the end of each of five years)	$10,000
Present value of an annuity of $1 at 12% for five years (Exhibit 2)	× 3.605
Present value of annual net cash flows	$36,050
Less amount to be invested	33,530
Net present value	$ 2,520

When equal annual net cash flows are expected from a proposal, as in the above example, the internal rate of return can be determined as follows:[4]

Step 1. Determine a present value factor for an annuity of $1 as follows:

$$\text{Present Value Factor for an Annuity of \$1} = \frac{\text{Amount to Be Invested}}{\text{Equal Annual Net Cash Flows}}$$

Step 2. Locate the present value factor determined in Step 1 in the present value of an annuity of $1 table (Exhibit 2 on page 1216) as follows:

a. Locate the number of years of expected useful life of the investment in the Year column.

b. Proceed horizontally across the table until you find the present value factor computed in Step 1.

Step 3. Identify the internal rate of return by the heading of the column in which the present value factor in Step 2 is located.

To illustrate, assume that management is evaluating the following proposal to purchase new equipment:

Cost of new equipment	$97,360
Yearly expected cash flows to be received	20,000
Expected useful life	7 years

The present value factor for an annuity of $1 is 4.868, as shown below.

$$\text{Present Value Factor for an Annuity of \$1} = \frac{\text{Amount to Be Invested}}{\text{Equal Annual Net Cash Flows}}$$

$$\text{Present Value Factor for an Annuity of \$1} = \frac{\$97{,}360}{\$20{,}000} = 4.868$$

Using the partial present value of an annuity of $1 table shown below and a period of seven years, the factor 4.868 is related to 10%. Thus, the internal rate of return for this proposal is 10%.

Present Value of an Annuity of $1 at Compound Interest

	Year	6%		Step 3 10%	12%
	1	0.943		0.909	0.893
	2	1.833		1.736	1.690
	3	2.673		2.487	2.402
	4	3.465		3.170	3.037
	5	4.212		3.791	3.605
	6	4.917	Step 2(b)	4.355	4.111
Step 2(a)	7	5.582		4.868	4.564
	8	6.210		5.335	4.968
	9	6.802		5.759	5.328
	10	7.360		6.145	5.650

Step 1: Determine present value factor for an annuity of $1 $= \frac{\$97{,}360}{\$20{,}000} = 4.868$

---

[4] To simplify, equal annual net cash flows are assumed. If the net cash flows are not equal, spreadsheet software can be used to determine the rate of return.

If the minimum acceptable rate of return is 10%, then the proposal is considered acceptable. Several proposals can be ranked by their internal rates of return. The proposal with the highest rate is the most desirable.

The internal rate of return method has the following three advantages:

1. It considers the cash flows of the investment.
2. It considers the time value of money.
3. It ranks proposals based upon the cash flows over their complete useful life, even if the project lives are not the same.

The internal rate of return method has the following two disadvantages:

1. It has complex computations, requiring a computer if the periodic cash flows are not equal (an annuity).
2. It assumes the cash received from a proposal can be reinvested at the internal rate of return, which may not be valid.

BusinessConnection

PANERA BREAD STORE RATE OF RETURN

Panera Bread owns, operates, and franchises bakery-cafes throughout the United States. A recent annual report to the Securities and Exchange Commission (SEC Form 10-K) disclosed the following information about an average company-owned store:

Operating profit	$ 327,000
Depreciation	98,000
Investment	1,000,000

Assume that the operating profit and depreciation will remain unchanged for the next 10 years. Assume operating profit plus depreciation approximates annual net cash flows, and that the investment residual value will be zero. The average rate of return and internal rate of return can then be estimated. The average rate of return on a company-owned store is:

$$\frac{\$327{,}000}{\$1{,}000{,}000/2} = 65.4\%$$

The internal rate of return is calculated by first determining the present value of an annuity of $1:

$$\text{Present Value of an Annuity of \$1} = \frac{\$1{,}000{,}000}{\$327{,}000 + \$98{,}000} = 2.35$$

For a period of three years, this factor implies an internal rate of return over 12% (from Exhibit 2). However, if we more realistically assumed these cash flows for 10 years, Panera's company-owned stores generate an estimated internal rate of return of approximately 41% (from a spreadsheet calculation). Clearly, both investment evaluation methods indicate a highly successful business.

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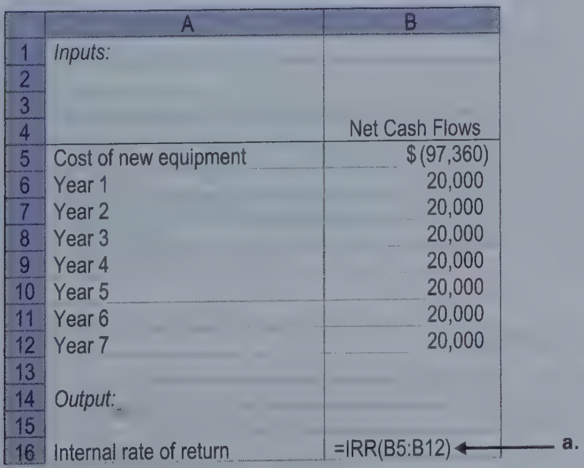
excel SUCCESS

The internal rate of return can be determined using a spreadsheet formula, as follows:



	A	B
1	*Inputs:*	
2		
3		
4		Net Cash Flows
5	Cost of new equipment	$ (97,360)
6	Year 1	20,000
7	Year 2	20,000
8	Year 3	20,000
9	Year 4	20,000
10	Year 5	20,000
11	Year 6	20,000
12	Year 7	20,000
13		
14	*Output:*	
15		
16	Internal rate of return	=IRR(B5:B12)

The inputs are the cash flows of the project, beginning with the initial investment entered as a negative number. In this case, the cost of the equipment is $97,360, which is entered in cell B5 as a negative number.

The remaining cash flows are entered individually for each of the years of the project life. The equipment will generate cash flows of $20,000 at the end of each year of the expected seven years of equipment life. These cash flows are entered in B6:B12.

a. The output is the internal rate of return. Enter in cell B16 the Excel =IRR function, as follows:

=IRR(B5:B12)

The range B5:B12 covers the cash flows of the project, including as the first cash flow the initial investment, entered as a negative number. The internal rate of return calculated is 10%, the same rate using the table method.

One advantage of the spreadsheet approach is that the =IRR function can estimate the internal rate of return for a series of unequal cash flows, which is not possible to determine under the table method.

Try*It* Go to the hands-on ***Excel Tutor*** for this example!

Example Exercise 26-4 Internal Rate of Return OBJ. 3

A project is estimated to cost $208,175 and provide annual net cash flows of $55,000 for six years. Determine the internal rate of return for this project, using Exhibit 2 on page 1216.

Follow My Example 26-4

15% [($208,175/$55,000) = 3.785, the present value of an annuity factor for six periods at 15%, from Exhibit 2]

Practice Exercises: **PE 26-4A, PE 26-4B**

OBJ. 4 List and describe factors that complicate capital investment analysis.

Factors That Complicate Capital Investment Analysis

Four widely used methods of evaluating capital investment proposals have been described and illustrated in this chapter. In practice, additional factors such as the following may impact capital investment decisions:

1. Income tax
2. Proposals with unequal lives
3. Leasing versus purchasing
4. Uncertainty
5. Changes in price levels
6. Qualitative factors

Income Tax

The impact of income taxes on capital investment decisions can be material. For example, in determining depreciation for federal income tax purposes, useful lives that are much shorter than the actual useful lives are often used. Also, depreciation for tax purposes often differs from depreciation for financial statement purposes. As a result, the timing of the cash flows for income taxes can have a significant impact on capital investment analysis.[5]

Unequal Proposal Lives

The prior capital investment illustrations assumed that the alternative proposals had the same useful lives. In practice, however, proposals often have different lives.

To illustrate, assume that a company is considering purchasing a new truck or a new computer network. The data for each proposal are shown below.

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[5] The impact of taxes on capital investment analysis is covered in advanced accounting textbooks.

	Truck	Computer Network
Cost	$100,000	$100,000
Minimum desired rate of return	10%	10%
Expected useful life	8 years	5 years
Yearly expected cash flows to be received:		
Year 1	$ 30,000	$ 30,000
Year 2	30,000	30,000
Year 3	25,000	30,000
Year 4	20,000	30,000
Year 5	15,000	35,000
Year 6	15,000	0
Year 7	10,000	0
Year 8	10,000	0
Total	$155,000	$155,000

The expected cash flows and net present value for each proposal are shown in Exhibit 4. Because of the unequal useful lives, however, the net present values in Exhibit 4 are not comparable.

To make the proposals comparable, the useful lives are adjusted to end at the same time. In this illustration, this is done by assuming that the truck will be sold at the end of five years. The selling price (residual value) of the truck at the end of five years is estimated and included in the cash inflows. Both proposals will then cover five years; thus, the net present value analyses will be comparable.

To illustrate, assume that the truck's estimated selling price (residual value) at the end of Year 5 is $40,000. Exhibit 5 shows the truck's revised present value analysis assuming a five-year life.

As shown in Exhibit 5, the net present value for the truck exceeds the net present value for the computer network by $1,835 ($18,640 – $16,805). Thus, the truck is the more attractive of the two proposals.

Example Exercise 26-5 Net Present Value—Unequal Lives

OBJ. 4

Project 1 requires an original investment of $50,000. The project will yield cash flows of $12,000 per year for seven years. Project 2 has a calculated net present value of $8,900 over a five-year life. Project 1 could be sold at the end of five years for a price of $30,000. (a) Determine the net present value of Project 1 over a five-year life with residual value, assuming a minimum rate of return of 12%. (b) Which project provides the greatest net present value?

Follow My Example 26-5

Project 1

a. Present value of $12,000 per year at 12% for 5 years	$43,260	[$12,000 × 3.605 (Exhibit 2, 12%, 5 years)]
Present value of $30,000 at 12% at the end of 5 years	17,010	[$30,000 × 0.567 (Exhibit 1, 12%, 5 years)]
Total present value of Project 1	$60,270	
Total cost of Project 1	50,000	
Net present value of Project 1	$10,270	

b. Project 1—$10,270 is greater than the net present value of Project 2, $8,900.

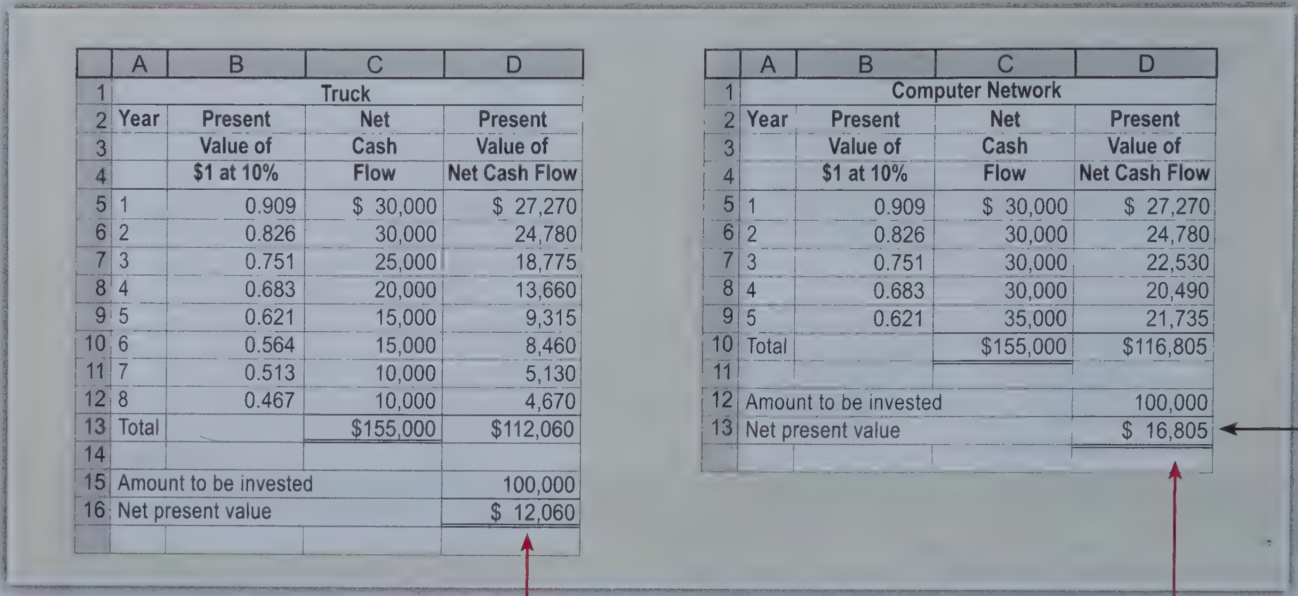
Practice Exercises: **PE 26-5A, PE 26-5B**

Lease versus Capital Investment

Leasing fixed assets is common in many industries. For example, hospitals often lease medical equipment. Some advantages of leasing a fixed asset include the following:

1. The company has use of the fixed asset without spending large amounts of cash to purchase the asset.
2. The company eliminates the risk of owning an obsolete asset.
3. The company may deduct the annual lease payments for income tax purposes.

EXHIBIT 4 Net Present Value Analysis—Unequal Lives of Proposals



	A	B	C	D
1	Truck			
2	Year	Present	Net	Present
3		Value of	Cash	Value of
4		$1 at 10%	Flow	Net Cash Flow
5	1	0.909	$ 30,000	$ 27,270
6	2	0.826	30,000	24,780
7	3	0.751	25,000	18,775
8	4	0.683	20,000	13,660
9	5	0.621	15,000	9,315
10	6	0.564	15,000	8,460
11	7	0.513	10,000	5,130
12	8	0.467	10,000	4,670
13	Total		$155,000	$112,060
14				
15	Amount to be invested			100,000
16	Net present value			$ 12,060

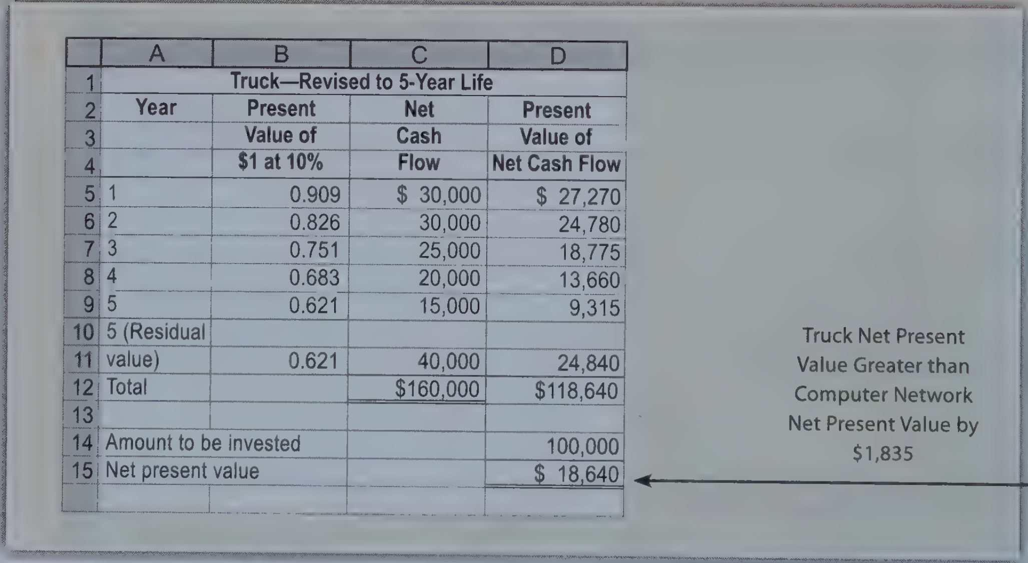
	A	B	C	D
1	Computer Network			
2	Year	Present	Net	Present
3		Value of	Cash	Value of
4		$1 at 10%	Flow	Net Cash Flow
5	1	0.909	$ 30,000	$ 27,270
6	2	0.826	30,000	24,780
7	3	0.751	30,000	22,530
8	4	0.683	30,000	20,490
9	5	0.621	35,000	21,735
10	Total		$155,000	$116,805
11				
12	Amount to be invested			100,000
13	Net present value			$ 16,805

Cannot be compared (unequal lives)

Compared (equal lives)

EXHIBIT 5

Net Present Value Analysis—Equalized Lives of Proposals



	A	B	C	D
1	Truck—Revised to 5-Year Life			
2	Year	Present	Net	Present
3		Value of	Cash	Value of
4		$1 at 10%	Flow	Net Cash Flow
5	1	0.909	$ 30,000	$ 27,270
6	2	0.826	30,000	24,780
7	3	0.751	25,000	18,775
8	4	0.683	20,000	13,660
9	5	0.621	15,000	9,315
10	5 (Residual			
11	value)	0.621	40,000	24,840
12	Total		$160,000	$118,640
13				
14	Amount to be invested			100,000
15	Net present value			$ 18,640

Truck Net Present Value Greater than Computer Network Net Present Value by $1,835

A disadvantage of leasing a fixed asset is that it is normally more costly than purchasing the asset. This is because the lessor (owner of the asset) includes in the rental price not only the costs of owning the asset, but also a profit.

The methods of evaluating capital investment proposals illustrated in this chapter can also be used to decide whether to lease or purchase a fixed asset.

Uncertainty

All capital investment analyses rely on factors that are uncertain. For example, estimates of revenues, expenses, and cash flows are uncertain. This is especially

true for long-term capital investments. Errors in one or more of the estimates could lead to incorrect decisions. Methods that consider the impact of uncertainty on capital investment analysis are discussed in advanced accounting and finance textbooks.

BusinessConnection

AVATAR: THE MOST EXPENSIVE MOVIE EVER MADE (AND THE MOST SUCCESSFUL)

Prior to the release of the blockbuster *Avatar* in December 2009, many were skeptical if the movie's huge $500 million investment would pay off. After all, just to break even the movie would have to perform as one of the top 50 movies of all time. To provide a return that was double the investment, the movie would have to crack the top ten. Many thought this was a tall order, even though James Cameron, the force behind this movie, already had the number one grossing movie of all time: *Titanic*, at $1.8 billion in worldwide box office revenues. Could he do it again? That was the question.

So, how did the film do? Only eight weeks after its release, Avatar had become the number one grossing film of all time, with over $2.2 billion in worldwide box office revenue. Executives at Fox anticipated that the profit might double after the film was released on DVD in the summer of 2010. Needless to say, James Cameron, 20th Century Fox, and other investors are very pleased with their return on this investment.

Sources: Michael Cieply, "A Movie's Budget Pops from the Screen," *New York Times*, November 8, 2009; "Bulk of Avatar Profit Still to Come," *The Age*, February 3, 2010.

Changes in Price Levels

Price levels normally change as the economy improves or deteriorates. General price levels often increase in a rapidly growing economy, which is called **inflation**. During such periods, the rate of return on an investment should exceed the rising price level. If this is not the case, the cash returned on the investment will be less than expected.

Price levels may also change for foreign investments. This occurs as currency exchange rates change. **Currency exchange rates** are the rates at which currency in another country can be exchanged for U.S. dollars.

If the amount of local dollars that can be exchanged for one U.S. dollar increases, then the local currency is said to be weakening to the dollar. When a company has an investment in another country where the local currency is weakening, the return on the investment, as expressed in U.S. dollars, is adversely impacted. This is because the expected amount of local currency returned on the investment would purchase fewer U.S. dollars.[6]

Qualitative Considerations

Some benefits of capital investments are qualitative in nature and cannot be estimated in dollar terms. However, if a company does not consider qualitative considerations, an acceptable investment proposal could be rejected.

Some examples of qualitative considerations that may influence capital investment analysis include the impact of the investment proposal on the following:

1. Product quality
2. Manufacturing flexibility
3. Employee morale
4. Manufacturing productivity
5. Market (strategic) opportunities

Many qualitative factors, such as those listed above, may be as important as, if not more important than, quantitative factors.

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[6] Further discussion on accounting for foreign currency transactions is available on the companion Web site at **www.cengage.com/accounting/reeve**.

Integrity, Objectivity, and Ethics in Business

ASSUMPTION FUDGING

The results of any capital budgeting analysis depend on many subjective estimates, such as the cash flows, discount rate, time period, and total investment amount. The results of the analysis should be used to either support or reject a project. Capital budgeting should not be used to justify an assumed net present value. That is, the analyst should not work backwards, filling in assumed numbers that will produce the desired net present value. Such a reverse approach reduces the credibility of the entire process.

OBJ. 5 Diagram the capital rationing process.

Capital Rationing

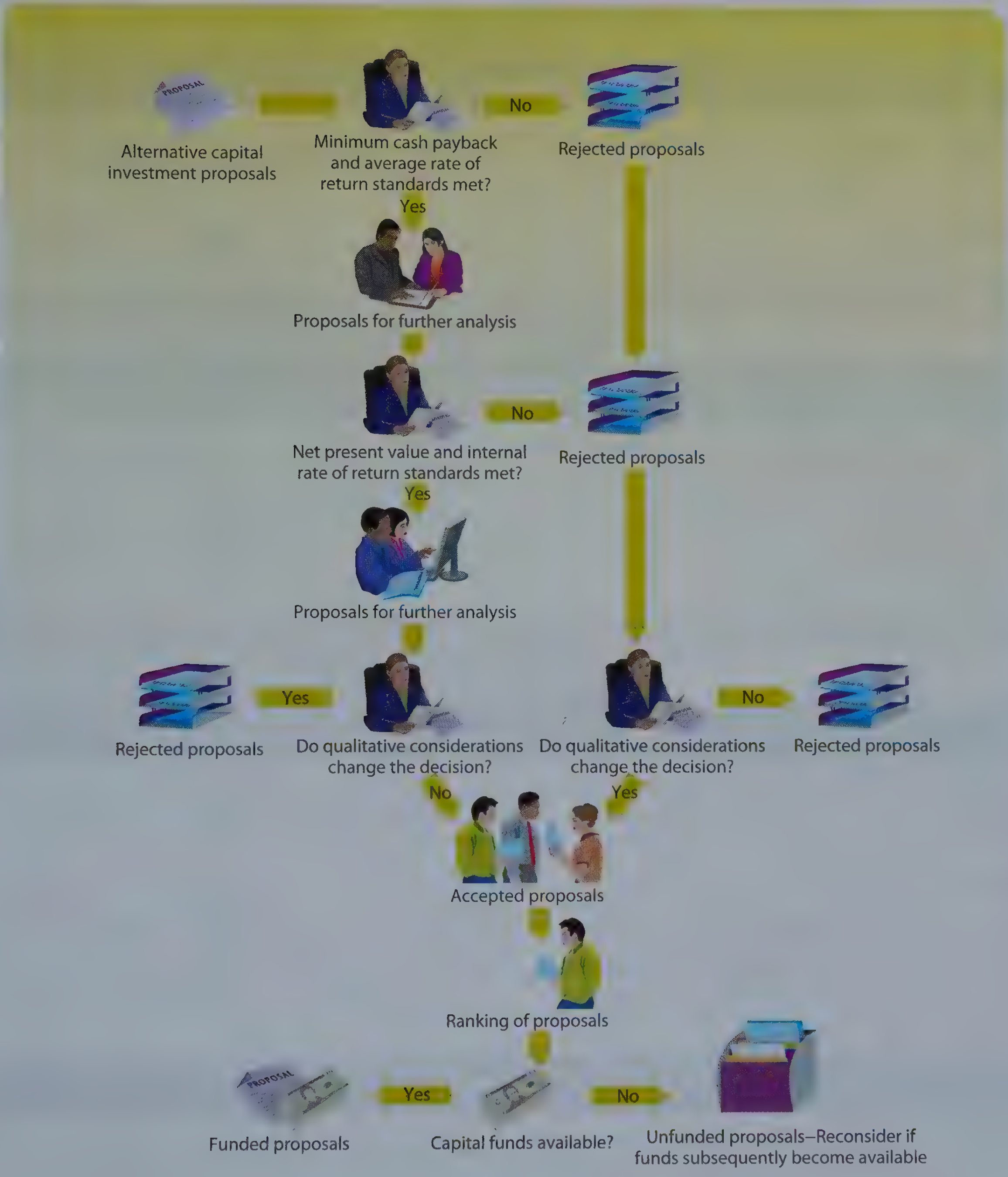
Capital rationing is the process by which management allocates funds among competing capital investment proposals. In this process, management often uses a combination of the methods described in this chapter.

Exhibit 6 illustrates the capital rationing decision process. Alternative proposals are initially screened by establishing minimum standards using the cash payback and the average rate of return methods. The proposals that survive this screening are further analyzed, using the net present value and internal rate of return methods.

Qualitative factors related to each proposal should also be considered throughout the capital rationing process. For example, new equipment might improve the quality of the product and, thus, increase consumer satisfaction and sales.

At the end of the capital rationing process, accepted proposals are ranked and compared with the funds available. Proposals that are selected for funding are included in the capital expenditures budget. Unfunded proposals may be reconsidered if funds later become available.

EXHIBIT 6 **Capital Rationing Decision Process**



At a Glance 26

OBJ. 1 Explain the nature and importance of capital investment analysis.

Key Points Capital investment analysis is the process by which management plans, evaluates, and controls investments involving fixed assets. Capital investment analysis is important to a business because such investments affect profitability for a long period of time.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the purpose of capital investment analysis.		

OBJ. 2 Evaluate capital investment proposals using the average rate of return and cash payback methods.

Key Points The average rate of return method measures the expected profitability of an investment in fixed assets. The expected period of time that will pass between the date of an investment and the complete recovery in cash (or equivalent) of the amount invested is the cash payback period.

Learning Outcomes	Example Exercises	Practice Exercises
• Compute the average rate of return of a project.	EE26-1	PE26-1A, 26-1B
• Compute the cash payback period of a project.	EE26-2	PE26-2A, 26-2B

OBJ. 3 Evaluate capital investment proposals using the net present value and internal rate of return methods.

Key Points The net present value method uses present values to compute the net present value of the cash flows expected from a proposal. The internal rate of return method uses present values to compute the rate of return from the net cash flows expected from capital investment proposals.

Learning Outcomes	Example Exercises	Practice Exercises
• Compute the net present value of a project.	EE26-3	PE26-3A, 26-3B
• Compute the internal rate of return of a project.	EE26-4	PE26-4A, 26-4B

OBJ. 4 List and describe factors that complicate capital investment analysis.

Key Points Factors that may complicate capital investment analysis include the impact of income tax, unequal lives of alternative proposals, leasing, uncertainty, changes in price levels, and qualitative considerations.

Learning Outcomes	Example Exercises	Practice Exercises
• Describe the impact of income taxes in capital investment analysis.		
• Evaluate projects with unequal lives.	EE26-5	PE26-5A, 26-5B
• Describe leasing versus capital investment.		
• Describe uncertainty, changes in price levels, and qualitative considerations in capital investment analysis.		

OBJ. 5

Diagram the capital rationing process.

Key Points Capital rationing refers to the process by which management allocates available investment funds among competing capital investment proposals. A diagram of the capital rationing process appears in Exhibit 6.

Learning Outcomes	Example Exercises	Practice Exercises
• Define *capital rationing*. • Diagram the capital rationing process.		

Key Terms

annuity (1215)
average rate of return (1211)
capital investment analysis (1210)
capital rationing (1226)
cash payback period (1212)
currency exchange rate (1225)
inflation (1225)
internal rate of return (IRR) method (1219)
net present value method (1216)
present value concept (1214)
present value index (1218)
present value of an annuity (1215)
time value of money concept (1210)

Illustrative Problem

The capital investment committee of Hopewell Company is currently considering two investments. The estimated income from operations and net cash flows expected from each investment are as follows:

	Truck		Equipment	
Year	Income from Operations	Net Cash Flow	Income from Operations	Net Cash Flow
1	$ 6,000	$ 22,000	$13,000	$ 29,000
2	9,000	25,000	10,000	26,000
3	10,000	26,000	8,000	24,000
4	8,000	24,000	8,000	24,000
5	11,000	27,000	3,000	19,000
	$44,000	$124,000	$42,000	$122,000

Each investment requires $80,000. Straight-line depreciation will be used, and no residual value is expected. The committee has selected a rate of 15% for purposes of the net present value analysis.

Instructions

1. Compute the following:
   a. The average rate of return for each investment.
   b. The net present value for each investment. Use the present value of $1 table appearing in this chapter (Exhibit 1).
2. Why is the net present value of the equipment greater than the truck, even though its average rate of return is less?
3. Prepare a summary for the capital investment committee, advising it on the relative merits of the two investments.

Solution

1. a. Average rate of return for the truck:

$$\frac{\$44{,}000 \div 5}{(\$80{,}000 + \$0) \div 2} = 22\%$$

Average rate of return for the equipment:

$$\frac{\$42{,}000 \div 5}{(\$80{,}000 + \$0) \div 2} = 21\%$$

b. Net present value analysis:

		Net Cash Flow		Present Value of Net Cash Flow	
Year	Present Value of $1 at 15%	Truck	Equipment	Truck	Equipment
1	0.870	$ 22,000	$ 29,000	$19,140	$25,230
2	0.756	25,000	26,000	18,900	19,656
3	0.658	26,000	24,000	17,108	15,792
4	0.572	24,000	24,000	13,728	13,728
5	0.497	27,000	19,000	13,419	9,443
Total		$124,000	$122,000	$82,295	$83,849
Amount to be invested				80,000	80,000
Net present value				$ 2,295	$ 3,849

2. The equipment has a lower average rate of return than the truck because the equipment's total income from operations for the five years is $42,000, which is $2,000 less than the truck's. Even so, the net present value of the equipment is greater than that of the truck, because the equipment has higher cash flows in the early years.

3. Both investments exceed the selected rate established for the net present value analysis. The truck has a higher average rate of return, but the equipment offers a larger net present value. Thus, if only one of the two investments can be accepted, the equipment would be the more attractive.

Discussion Questions

1. What are the principal objections to the use of the average rate of return method in evaluating capital investment proposals?
2. Discuss the principal limitations of the cash payback method for evaluating capital investment proposals.
3. Why would the average rate of return differ from the internal rate of return on the same project?
4. Your boss has suggested that a one-year payback period is the same as a 100% average rate of return. Do you agree?
5. Why would the cash payback method understate the attractiveness of a project with a large residual value?
6. Why would the use of the cash payback period for analyzing the financial performance of theatrical releases from a motion picture production studio be supported over the net present value method?
7. A net present value analysis used to evaluate a proposed equipment acquisition indicated a $7,900 net present value. What is the meaning of the $7,900 as it relates to the desirability of the proposal?
8. Two projects have an identical net present value of $9,000. Are both projects equal in desirability?
9. What are the major disadvantages of the use of the net present value method of analyzing capital investment proposals?
10. What are the major disadvantages of the use of the internal rate of return method of analyzing capital investment proposals?
11. What are the major advantages of leasing a fixed asset rather than purchasing it?
12. Give an example of a qualitative factor that should be considered in a capital investment analysis related to acquiring automated factory equipment.

Practice Exercises

Learning Objectives	Example Exercises
OBJ. 2	EE 26-1 p. 1212

PE 26-1A Average rate of return

Determine the average rate of return for a project that is estimated to yield total income of $180,000 over five years, has a cost of $340,000, and has a $20,000 residual value.

OBJ. 2 EE 26-1 p. 1212

PE 26-1B Average rate of return

Determine the average rate of return for a project that is estimated to yield total income of $54,000 over three years, has a cost of $80,000, and has a $20,000 residual value.

OBJ. 2 EE 26-2 p. 1213

PE 26-2A Cash payback period

A project has estimated annual net cash flows of $121,000. It is estimated to cost $798,600. Determine the cash payback period. Round to one decimal place.

OBJ. 2 EE 26-2 p. 1213

PE 26-2B Cash payback period

A project has estimated annual net cash flows of $8,600. It is estimated to cost $47,300. Determine the cash payback period. Round to one decimal place.

OBJ. 3 EE 26-3 p. 1219

PE 26-3A Net present value

A project has estimated annual net cash flows of $86,400 for five years and is estimated to cost $259,000. Assume a minimum acceptable rate of return of 12%. Using Exhibit 2, determine (1) the net present value of the project and (2) the present value index, rounded to two decimal places.

OBJ. 3 EE 26-3 p. 1219

PE 26-3B Net present value

A project has estimated annual net cash flows of $8,200 for four years and is estimated to cost $30,050. Assume a minimum acceptable rate of return of 10%. Using Exhibit 2, determine (1) the net present value of the project and (2) the present value index, rounded to two decimal places.

OBJ. 3 EE 26-4 p. 1222

PE 26-4A Internal rate of return

A project is estimated to cost $71,580 and provide annual net cash flows of $15,000 for nine years. Determine the internal rate of return for this project, using Exhibit 2.

OBJ. 3 EE 26-4 p. 1222

PE 26-4B Internal rate of return

A project is estimated to cost $409,370 and provide annual net cash flows of $94,000 for six years. Determine the internal rate of return for this project, using Exhibit 2.

OBJ. 4 EE 26-5 p. 1223

PE 26-5A Net present value—unequal lives

Project A requires an original investment of $112,000. The project will yield cash flows of $22,000 per year for nine years. Project B has a calculated net present value of $2,400

over a six-year life. Project A could be sold at the end of six years for a price of $50,000. (a) Determine the net present value of Project A over a six-year life with residual value, assuming a minimum rate of return of 12%. (b) Which project provides the greatest net present value?

OBJ. 4 **EE 26-5** *p. 1223*

PE 26-5B Net present value—unequal lives

Project 1 requires an original investment of $12,000. The project will yield cash flows of $4,000 per year for seven years. Project 2 has a calculated net present value of $6,500 over a four-year life. Project 1 could be sold at the end of four years for a price of $14,500. (a) Determine the net present value of Project 1 over a four-year life with residual value, assuming a minimum rate of return of 20%. (b) Which project provides the greatest net present value?

Exercises

OBJ. 2

✔ Testing equipment, 9%

EX 26-1 Average rate of return

The following data are accumulated by ChemLabs, Inc. in evaluating two competing capital investment proposals:

	Testing Equipment	Vehicle
Amount of investment	$90,000	$25,000
Useful life	6 years	8 years
Estimated residual value	0	0
Estimated total income over the useful life	$24,300	$15,000

Determine the expected average rate of return for each proposal.

OBJ. 2

EX 26-2 Average rate of return—cost savings

Wisconsin Fabricators Inc. is considering an investment in equipment that will replace direct labor. The equipment has a cost of $90,000 with a $10,000 residual value and a 10-year life. The equipment will replace one employee who has an average wage of $30,000 per year. In addition, the equipment will have operating and energy costs of $4,500 per year.

Determine the average rate of return on the equipment, giving effect to straight-line depreciation on the investment.

OBJ. 2

✔ Average annual income, $252,000

EX 26-3 Average rate of return—new product

I-Mobile Inc. is considering an investment in new equipment that will be used to manufacture a mobile communications device. The device is expected to generate additional annual sales of 2,100 units at $370 per unit. The equipment has a cost of $920,000, residual value of $88,000, and an eight-year life. The equipment can only be used to manufacture the device. The cost to manufacture the device is shown below.

Cost per unit:	
Direct labor	$ 45
Direct materials	170
Factory overhead (including depreciation)	35
Total cost per unit	$250

Determine the average rate of return on the equipment.

OBJ. 2

Year 1: ($98,000)

EX 26-4 Calculate cash flows

Earth's Bounty, Inc., is planning to invest in new manufacturing equipment to make a new garden tool. The new garden tool is expected to generate additional annual sales

of 10,000 units at $58 each. The new manufacturing equipment will cost $177,000 and is expected to have a 10-year life and $13,000 residual value. Selling expenses related to the new product are expected to be 5% of sales revenue. The cost to manufacture the product includes the following on a per-unit basis:

Direct labor	$ 8.00
Direct materials	35.00
Fixed factory overhead—depreciation	1.64
Variable factory overhead	4.20
Total	$48.84

Determine the net cash flows for the first year of the project, Years 2–9, and for the last year of the project.

OBJ. 2

✔ Location 1: 5 years

EX 26-5 Cash payback period

Nations Trust is evaluating two capital investment proposals for a drive-up ATM kiosk, each requiring an investment of $320,000 and each with an eight-year life and expected total net cash flows of $512,000. Location 1 is expected to provide equal annual net cash flows of $64,000, and Location 2 is expected to have the following unequal annual net cash flows:

Year 1	$110,000	Year 5	$48,000
Year 2	80,000	Year 6	48,000
Year 3	70,000	Year 7	48,000
Year 4	60,000	Year 8	48,000

Determine the cash payback period for both location proposals.

OBJ. 2

EX 26-6 Cash payback method

Bath Works Products Company is considering an investment in one of two new product lines. The investment required for either product line is $660,000. The net cash flows associated with each product are as follows:

Year	Liquid Soap	Body Lotion
1	$110,000	$210,000
2	110,000	180,000
3	110,000	150,000
4	110,000	120,000
5	110,000	80,000
6	110,000	50,000
7	110,000	50,000
8	110,000	40,000
Total	$880,000	$880,000

a. Recommend a product offering to Bath Works Products Company, based on the cash payback period for each product line.

b. Why is one product line preferred over the other, even though they both have the same total net cash flows through eight periods?

OBJ. 3

✔ a. NPV, $14,822

EX 26-7 Net present value method

The following data are accumulated by Parker Company in evaluating the purchase of $126,000 of equipment, having a four-year useful life:

	Net Income	Net Cash Flow
Year 1	$33,500	$65,000
Year 2	24,500	56,000
Year 3	10,500	42,000
Year 4	(6,500)	25,000

a. Assuming that the desired rate of return is 15%, determine the net present value for the proposal. Use the table of the present value of $1 appearing in Exhibit 1 of this chapter.

b. Would management be likely to look with favor on the proposal? Explain.

OBJ. 3

✔ a. 2012, $14,000

EX 26-8 Net present value method

Courier Express, Inc., is considering the purchase of an additional delivery vehicle for $48,000 on January 1, 2012. The truck is expected to have a five-year life with an expected residual value of $12,000 at the end of five years. The expected additional revenues from the added delivery capacity are anticipated to be $62,000 per year for each of the next five years. A driver will cost $45,000 in 2012, with an expected annual salary increase of $2,000 for each year thereafter. The insurance for the truck is estimated to cost $3,000 per year.

a. Determine the expected annual net cash flows from the delivery truck investment for 2012–2016.

b. Calculate the net present value of the investment, assuming that the minimum desired rate of return is 12%. Use the present value of $1 table appearing in Exhibit 1 of this chapter.

c. Is the additional truck a good investment based on your analysis?

OBJ. 3

✔ a. $33 million

EX 26-9 Net present value method—annuity

Luxmark Hotels is considering the construction of a new hotel for $210 million. The expected life of the hotel is 30 years with no residual value. The hotel is expected to earn revenues of $58 million per year. Total expenses, including depreciation, are expected to be $32 million per year. Luxmark management has set a minimum acceptable rate of return of 14%.

a. Determine the equal annual net cash flows from operating the hotel.

b. Calculate the net present value of the new hotel using the present value of an annuity of $1 table found in Appendix A. Round to the nearest million dollars.

c. Does your analysis support construction of the new hotel?

OBJ. 3

✔ a. $37,200

EX 26-10 Net present value method—annuity

Easton Excavation Company is planning an investment of $120,000 for a bulldozer. The bulldozer is expected to operate for 1,400 hours per year for five years. Customers will be charged $105 per hour for bulldozer work. The bulldozer operator costs $34 per hour in wages and benefits. The bulldozer is expected to require annual maintenance costing $9,000. The bulldozer uses fuel that is expected to cost $38 per hour of bulldozer operation.

a. Determine the equal annual net cash flows from operating the bulldozer.

b. Determine the net present value of the investment, assuming that the desired rate of return is 10%. Use the present value of an annuity of $1 table in the chapter (Exhibit 2). Round to the nearest dollar.

c. Should Easton invest in the bulldozer, based on this analysis?

d. Determine the number of operating hours such that the present value of cash flows equals the amount to be invested.

OBJ. 3

✔ a. $148,120,000

EX 26-11 Net present value method

Carnival Corporation has recently placed into service some of the largest cruise ships in the world. One of these ships, the *Carnival Dream*, can hold up to 3,600 passengers and cost $750 million to build. Assume the following additional information:

- There will be 320 cruise days per year operated at a full capacity of 3,600 passengers.
- The variable expenses per passenger are estimated to be $95 per cruise day.
- The revenue per passenger is expected to be $280 per cruise day.

- The fixed expenses for running the ship, other than depreciation, are estimated to be $65,000,000 per year.
- The ship has a service life of 10 years, with a residual value of $100,000,000 at the end of 10 years.

a. Determine the annual net cash flow from operating the cruise ship.

b. Determine the net present value of this investment, assuming a 12% minimum rate of return. Use the present value tables provided in the chapter in determining your answer.

OBJ. 3

✔ Cedar Rapids, 1.04

EX 26-12 Present value index

Dippin' Doughnuts has computed the net present value for capital expenditure at two locations. Relevant data related to the computation are as follows:

	Mason City	Cedar Rapids
Total present value of net cash flow	$455,900	$565,760
Amount to be invested	485,000	544,000
Net present value	$ (29,100)	$ 21,760

a. Determine the present value index for each proposal.

b. Which location does your analysis support?

OBJ. 3

✔ b. Packing Machine, 1.50

EX 26-13 Net present value method and present value index

All-Star, Inc., is considering an investment in one of two machines. The sewing machine will increase productivity from sewing 150 baseballs per hour to sewing 260 per hour. The contribution margin per unit is $0.54 per baseball. Assume that any increased production of baseballs can be sold. The second machine is an automatic packing machine for the golf ball line. The packing machine will reduce packing labor cost. The labor cost saved is equivalent to $25 per hour. The sewing machine will cost $360,000, have an eight-year life, and will operate for 1,700 hours per year. The packing machine will cost $120,000, have an eight-year life, and will operate for 1,600 hours per year. All-Star seeks a minimum rate of return of 15% on its investments.

a. Determine the net present value for the two machines. Use the present value of an annuity of $1 table in the chapter (Exhibit 2). Round to the nearest dollar.

b. Determine the present value index for the two machines. Round to two decimal places.

c. If All-Star has sufficient funds for only one of the machines and qualitative factors are equal between the two machines, in which machine should it invest?

OBJ. 2, 3

✔ b. 6 years

EX 26-14 Average rate of return, cash payback period, net present value method

Continental Railroad Inc. is considering acquiring equipment at a cost of $552,000. The equipment has an estimated life of 10 years and no residual value. It is expected to provide yearly net cash flows of $92,000. The company's minimum desired rate of return for net present value analysis is 10%.

Compute the following:

a. The average rate of return, giving effect to straight-line depreciation on the investment. Round whole percent to one decimal place.

b. The cash payback period.

c. The net present value. Use the present value of an annuity of $1 table appearing in this chapter (Exhibit 2). Round to the nearest dollar.

OBJ. 2, 3, 4

✔ a. 5 years

EX 26-15 Payback period, net present value analysis, and qualitative considerations

The plant manager of Dublin Electronics Company is considering the purchase of new automated assembly equipment. The new equipment will cost $2,500,000. The manager believes that the new investment will result in direct labor savings of $500,000 per year for 10 years.

a. What is the payback period on this project?

b. What is the net present value, assuming a 10% rate of return? Use the present value of an annuity of $1 table in Exhibit 2.

c. What else should the manager consider in the analysis?

OBJ. 3

✓ a. 3.785

EX 26-16 Internal rate of return method

The internal rate of return method is used by Maxwell Construction Co. in analyzing a capital expenditure proposal that involves an investment of $45,420 and annual net cash flows of $12,000 for each of the six years of its useful life.

a. Determine a present value factor for an annuity of $1 which can be used in determining the internal rate of return.

b. Using the factor determined in part (a) and the present value of an annuity of $1 table appearing in this chapter (Exhibit 2), determine the internal rate of return for the proposal.

OBJ. 3, 4

EX 26-17 Internal rate of return method

The Canyons Resort, a Utah ski resort, recently announced a $400 million expansion to lodging properties, lifts, and terrain. Assume that this investment is estimated to produce $70.8 million in equal annual cash flows for each of the first 10 years of the project life.

a. Determine the expected internal rate of return of this project for 10 years, using the present value of an annuity of $1 table found in Exhibit 2.

b. What are some uncertainties that could reduce the internal rate of return of this project?

OBJ. 3

✓ a. Delivery truck, 12%

EX 26-18 Internal rate of return method—two projects

Toasted Treats Snack Company is considering two possible investments: a delivery truck or a bagging machine. The delivery truck would cost $44,271 and could be used to deliver an additional 61,000 bags of pretzels per year. Each bag of pretzels can be sold for a contribution margin of $0.40. The delivery truck operating expenses, excluding depreciation, are $0.70 per mile for 21,000 miles per year. The bagging machine would replace an old bagging machine, and its net investment cost would be $49,920. The new machine would require three fewer hours of direct labor per day. Direct labor is $16 per hour. There are 250 operating days in the year. Both the truck and the bagging machine are estimated to have seven-year lives. The minimum rate of return is 13%. However, Toasted Treats has funds to invest in only one of the projects.

a. Compute the internal rate of return for each investment. Use the present value of an annuity of $1 table appearing in this chapter (Exhibit 2).

b. Provide a memo to management with a recommendation.

OBJ. 3

✓ a. ($12,987)

EX 26-19 Net present value method and internal rate of return method

Hawkeye Healthcare Corp. is proposing to spend $134,136 on an eight-year project that has estimated net cash flows of $27,000 for each of the eight years.

a. Compute the net present value, using a rate of return of 15%. Use the present value of an annuity of $1 table in the chapter (Exhibit 2).

b. Based on the analysis prepared in part (a), is the rate of return (1) more than 15%, (2) 15%, or (3) less than 15%? Explain.

c. Determine the internal rate of return by computing a present value factor for an annuity of $1 and using the present value of an annuity of $1 table presented in the text (Exhibit 2).

OBJ. 3

EX 26-20 Identify error in capital investment analysis calculations

Solid Solutions Inc. is considering the purchase of automated machinery that is expected to have a useful life of five years and no residual value. The average rate of return on the average investment has been computed to be 20%, and the cash payback period was computed to be 5.5 years.

Do you see any reason to question the validity of the data presented? Explain.

OBJ. 3, 4

✔ Net present value, Processing Mill, $71,700

EX 26-21 Net present value—unequal lives

Gold Creek Mining Company has two competing proposals: a processing mill and an electric shovel. Both pieces of equipment have an initial investment of $840,000. The net cash flows estimated for the two proposals are as follows:

	Net Cash Flow	
Year	Processing Mill	Electric Shovel
1	$280,000	$350,000
2	250,000	325,000
3	250,000	300,000
4	200,000	300,000
5	150,000	
6	125,000	
7	100,000	
8	100,000	

The estimated residual value of the processing mill at the end of Year 4 is $350,000.

Determine which equipment should be favored, comparing the net present values of the two proposals and assuming a minimum rate of return of 15%. Use the present value tables presented in this chapter (Exhibits 1 and 2).

OBJ. 3, 4

EX 26-22 Net present value—unequal lives

Al a Mode, Inc., is considering one of two investment options. Option 1 is a $60,000 investment in new blending equipment that is expected to produce equal annual cash flows of $16,000 for each of seven years. Option 2 is a $70,000 investment in a new computer system that is expected to produce equal annual cash flows of $20,000 for each of five years. The residual value of the blending equipment at the end of the fifth year is estimated to be $10,000. The computer system has no expected residual value at the end of the fifth year.

Assume there is sufficient capital to fund only one of the projects. Determine which project should be selected, comparing the (a) net present values and (b) present value indices of the two projects, assuming a minimum rate of return of 10%. Round the present value index to two decimal places. Use the present value tables presented in this chapter (Exhibits 1 and 2).

Problems Series A

OBJ. 2, 3

✔ 1. a. 22.5%

PR 26-1A Average rate of return method, net present value method, and analysis

The capital investment committee of Hampton Landscaping Company is considering two capital investments. The estimated income from operations and net cash flows from each investment are as follows:

	Greenhouse		Skid Loader	
Year	Income from Operations	Net Cash Flow	Income from Operations	Net Cash Flow
1	$22,200	$ 35,000	$ 7,200	$ 20,000
2	12,200	25,000	7,200	20,000
3	7,200	20,000	7,200	20,000
4	(2,800)	10,000	7,200	20,000
5	(2,800)	10,000	7,200	20,000
	$36,000	$100,000	$36,000	$100,000

Each project requires an investment of $64,000. Straight-line depreciation will be used, and no residual value is expected. The committee has selected a rate of 12% for purposes of the net present value analysis.

Instructions

1. Compute the following:
   a. The average rate of return for each investment. Round to one decimal place.
   b. The net present value for each investment. Use the present value of $1 table appearing in this chapter (Exhibit 1).
2. Prepare a brief report for the capital investment committee, advising it on the relative merits of the two investments.

OBJ. 2, 3

✓ 1. b. Plant Expansion, $47,490

PR 26-2A Cash payback period, net present value method, and analysis

Runway Apparel Inc. is considering two investment projects. The estimated net cash flows from each project are as follows:

Year	Plant Expansion	Retail Store Expansion
1	$ 350,000	$ 360,000
2	350,000	340,000
3	140,000	140,000
4	90,000	100,000
5	70,000	60,000
Total	$1,000,000	$1,000,000

Each project requires an investment of $700,000. A rate of 15% has been selected for the net present value analysis.

Instructions

1. Compute the following for each product:
   a. Cash payback period.
   b. The net present value. Use the present value of $1 table appearing in this chapter (Exhibit 1).
2. Prepare a brief report advising management on the relative merits of each project.

OBJ. 3

✓ 2. Railcars, 1.12

PR 26-3A Net present value method, present value index, and analysis

Mid Continent Railroad Company wishes to evaluate three capital investment proposals by using the net present value method. Relevant data related to the proposals are summarized as follows:

	New Maintenance Yard	Route Expansion	Acquire Railcars
Amount to be invested	$12,000,000	$20,000,000	$36,000,000
Annual net cash flows:			
Year 1	6,000,000	12,000,000	22,000,000
Year 2	4,800,000	11,000,000	18,500,000
Year 3	4,500,000	9,500,000	16,000,000

Instructions

1. Assuming that the desired rate of return is 20%, prepare a net present value analysis for each proposal. Use the present value of $1 table appearing in this chapter (Exhibit 1).
2. Determine a present value index for each proposal. Round to two decimal places.
3. Which proposal offers the largest amount of present value per dollar of investment? Explain.

OBJ. 3

✓ 1. a. Generating unit, $109,150

PR 26-4A Net present value method, internal rate of return method, and analysis

The management of Pacific Utilities Inc. is considering two capital investment projects. The estimated net cash flows from each project are as follows:

Year	Generating Unit	Distribution Network Expansion
1	$370,000	$280,000
2	370,000	280,000
3	370,000	280,000
4	370,000	280,000

The generating unit requires an investment of $1,172,900, while the distribution network expansion requires an investment of $850,360. No residual value is expected from either project.

Instructions

1. Compute the following for each project:
    a. The net present value. Use a rate of 6% and the present value of an annuity of $1 table appearing in this chapter (Exhibit 2).
    b. A present value index. Round to two decimal places.
2. Determine the internal rate of return for each project by (a) computing a present value factor for an annuity of $1 and (b) using the present value of an annuity of $1 table appearing in this chapter (Exhibit 2).
3. What advantage does the internal rate of return method have over the net present value method in comparing projects?

OBJ. 3, 4

✓ 1. Servers, $27,770

PR 26-5A Evaluate alternative capital investment decisions

The investment committee of Shield Insurance Co. is evaluating two projects, office expansion and upgrade to computer servers. The projects have different useful lives, but each requires an investment of $610,000. The estimated net cash flows from each project are as follows:

	Net Cash Flows	
Year	Office Expansion	Servers
1	$160,000	$210,000
2	160,000	210,000
3	160,000	210,000
4	160,000	210,000
5	160,000	
6	160,000	

The committee has selected a rate of 12% for purposes of net present value analysis. It also estimates that the residual value at the end of each project's useful life is $0, but at the end of the fourth year, the office expansion's residual value would be $200,000.

Instructions

1. For each project, compute the net present value. Use the present value of an annuity of $1 table appearing in this chapter (Exhibit 2). (Ignore the unequal lives of the projects.)
2. For each project, compute the net present value, assuming that the office expansion is adjusted to a four-year life for purposes of analysis. Use the present value of $1 table appearing in this chapter (Exhibit 1).
3. Prepare a report to the investment committee, providing your advice on the relative merits of the two projects.

OBJ. 2, 3, 5

✓ 5. Proposal B, 1.26

PR 26-6A Capital rationing decision involving four proposals

Renaissance Capital Group is considering allocating a limited amount of capital investment funds among four proposals. The amount of proposed investment, estimated income from operations, and net cash flow for each proposal are as follows:

	Investment	Year	Income from Operations	Net Cash Flow
Proposal A:	$720,000	1	$ 76,000	$ 220,000
		2	76,000	220,000
		3	76,000	220,000
		4	36,000	180,000
		5	36,000	180,000
			$300,000	$1,020,000
Proposal B:	$124,000	1	$ 59,200	$ 84,000
		2	15,200	40,000
		3	15,200	40,000
		4	5,200	30,000
		5	(4,800)	20,000
			$ 90,000	$ 214,000
Proposal C:	$300,000	1	$ 20,000	$ 80,000
		2	20,000	80,000
		3	20,000	80,000
		4	0	60,000
		5	0	60,000
			$ 60,000	$ 360,000
Proposal D:	$200,000	1	$ 40,000	$ 80,000
		2	40,000	80,000
		3	20,000	60,000
		4	20,000	60,000
		5	20,000	60,000
			$140,000	$ 340,000

The company's capital rationing policy requires a maximum cash payback period of three years. In addition, a minimum average rate of return of 12% is required on all projects. If the preceding standards are met, the net present value method and present value indexes are used to rank the remaining proposals.

Instructions

1. Compute the cash payback period for each of the four proposals.
2. Giving effect to straight-line depreciation on the investments and assuming no estimated residual value, compute the average rate of return for each of the four proposals. Round to one decimal place.
3. Using the following format, summarize the results of your computations in parts (1) and (2). By placing the calculated amounts in the first two columns on the left and by placing a check mark in the appropriate column to the right, indicate which proposals should be accepted for further analysis and which should be rejected.

Proposal	Cash Payback Period	Average Rate of Return	Accept for Further Analysis	Reject
A				
B				
C				
D				

4. For the proposals accepted for further analysis in part (3), compute the net present value. Use a rate of 15% and the present value of $1 table appearing in this chapter (Exhibit 1).
5. Compute the present value index for each of the proposals in part (4). Round to two decimal places.
6. Rank the proposals from most attractive to least attractive, based on the present values of net cash flows computed in part (4).
7. Rank the proposals from most attractive to least attractive, based on the present value indexes computed in part (5).
8. Based on the analyses, comment on the relative attractiveness of the proposals ranked in parts (6) and (7).

Problems Series B

OBJ. 2, 3

✓ 1.a. 18%

PR 26-1B Average rate of return method, net present value method, and analysis

The capital investment committee of Safety Haul Trucking Inc. is considering two investment projects. The estimated income from operations and net cash flows from each investment are as follows:

	Warehouse		Tracking Technology	
Year	Income from Operations	Net Cash Flow	Income from Operations	Net Cash Flow
1	$ 90,000	$170,000	$ 36,000	$116,000
2	80,000	160,000	36,000	116,000
3	30,000	110,000	36,000	116,000
4	0	80,000	36,000	116,000
5	(20,000)	60,000	36,000	116,000
Total	$180,000	$580,000	$180,000	$580,000

Each project requires an investment of $400,000. Straight-line depreciation will be used, and no residual value is expected. The committee has selected a rate of 15% for purposes of the net present value analysis.

Instructions

1. Compute the following:
   a. The average rate of return for each investment.
   b. The net present value for each investment. Use the present value of $1 table appearing in this chapter (Exhibit 1).
2. Prepare a brief report for the capital investment committee, advising it on the relative merits of the two projects.

OBJ. 2, 3

✓ 1. b. *At Home Chef*, $86,620

PR 26-2B Cash payback period, net present value method, and analysis

Lifestyle Publications Inc. is considering two new magazine products. The estimated net cash flows from each product are as follows:

Year	*At Home Chef*	*Music Beat*
1	$170,000	$140,000
2	150,000	180,000
3	100,000	90,000
4	55,000	60,000
5	25,000	30,000
Total	$500,000	$500,000

Each product requires an investment of $320,000. A rate of 10% has been selected for the net present value analysis.

Instructions

1. Compute the following for each product:
   a. Cash payback period.
   b. The net present value. Use the present value of $1 table appearing in this chapter (Exhibit 1).
2. Prepare a brief report advising management on the relative merits of each of the two products.

OBJ. 3

✔ 2. Branch office expansion, 1.11

PR 26-3B Net present value method, present value index, and analysis

Evergreen Security Bank, Inc., wishes to evaluate three capital investment projects by using the net present value method. Relevant data related to the projects are summarized as follows:

	Branch Office Expansion	Computer System Upgrade	Install Internet Bill-Pay
Amount to be invested	$425,000	$650,000	$360,000
Annual net cash flows:			
Year 1	230,000	325,000	175,000
Year 2	210,000	300,000	155,000
Year 3	170,000	290,000	120,000

Instructions

1. Assuming that the desired rate of return is 15%, prepare a net present value analysis for each project. Use the present value of $1 table appearing in this chapter (Exhibit 1).
2. Determine a present value index for each project. Round to two decimal places.
3. Which project offers the largest amount of present value per dollar of investment? Explain.

OBJ. 3

✔ 1. a. Radio station, $55,860

PR 26-4B Net present value method, internal rate of return method, and analysis

The management of Saturn Networks Inc. is considering two capital investment projects. The estimated net cash flows from each project are as follows:

Year	Radio Station	TV Station
1	$420,000	$620,000
2	420,000	620,000
3	420,000	620,000
4	420,000	620,000

The radio station requires an investment of $1,275,540, while the TV station requires an investment of $1,770,100. No residual value is expected from either project.

Instructions

1. Compute the following for each project:
    a. The net present value. Use a rate of 10% and the present value of an annuity of $1 table appearing in this chapter (Exhibit 2).
    b. A present value index. Round to two decimal places.
2. Determine the internal rate of return for each project by (a) computing a present value factor for an annuity of $1 and (b) using the present value of an annuity of $1 table appearing in this chapter (Exhibit 2).
3. What advantage does the internal rate of return method have over the net present value method in comparing projects?

OBJ. 3, 4

✔ 1. Pasadena, $126,150

PR 26-5B Evaluate alternative capital investment decisions

The investment committee of Fiesta Cantina Restaurants Inc. is evaluating two restaurant sites. The sites have different useful lives, but each requires an investment of $780,000. The estimated net cash flows from each site are as follows:

	Net Cash Flows	
Year	Burbank	Pasadena
1	$270,000	$350,000
2	270,000	350,000
3	270,000	350,000
4	270,000	350,000
5	270,000	
6	270,000	

The committee has selected a rate of 20% for purposes of net present value analysis. It also estimates that the residual value at the end of each restaurant's useful life is $0, but at the end of the fourth year, Burbank's residual value would be $440,000.

Instructions

1. For each site, compute the net present value. Use the present value of an annuity of $1 table appearing in this chapter (Exhibit 2). (Ignore the unequal lives of the projects.)
2. For each site, compute the net present value, assuming that Burbank is adjusted to a four-year life for purposes of analysis. Use the present value of $1 table appearing in this chapter (Exhibit 1).
3. Prepare a report to the investment committee, providing your advice on the relative merits of the two sites.

OBJ. 2, 3, 5

✔ 5. Proposal B, 1.19

PR 26-6B Capital rationing decision involving four proposals

Nova Communications Inc. is considering allocating a limited amount of capital investment funds among four proposals. The amount of proposed investment, estimated income from operations, and net cash flow for each proposal are as follows:

	Investment	Year	Income from Operations	Net Cash Flow
Proposal A:	$500,000	1	$ 40,000	$140,000
		2	40,000	140,000
		3	20,000	120,000
		4	0	100,000
		5	(40,000)	60,000
			$ 60,000	$560,000
Proposal B:	$225,000	1	$ 55,000	$100,000
		2	35,000	80,000
		3	15,000	60,000
		4	15,000	60,000
		5	15,000	60,000
			$135,000	$360,000
Proposal C:	$600,000	1	$100,000	$220,000
		2	80,000	200,000
		3	60,000	180,000
		4	60,000	180,000
		5	30,000	150,000
			$330,000	$930,000
Proposal D:	$300,000	1	$ 65,000	$125,000
		2	25,000	85,000
		3	0	60,000
		4	0	60,000
		5	0	60,000
			$ 90,000	$390,000

The company's capital rationing policy requires a maximum cash payback period of three years. In addition, a minimum average rate of return of 12% is required on all projects. If the preceding standards are met, the net present value method and present value indexes are used to rank the remaining proposals.

Instructions

1. Compute the cash payback period for each of the four proposals.
2. Giving effect to straight-line depreciation on the investments and assuming no estimated residual value, compute the average rate of return for each of the four proposals. Round to one decimal place.
3. Using the following format, summarize the results of your computations in parts (1) and (2). By placing the calculated amounts in the first two columns on the left and by placing a check mark in the appropriate column to the right, indicate which proposals should be accepted for further analysis and which should be rejected.

(continued)

Proposal	Cash Payback Period	Average Rate of Return	Accept for Further Analysis	Reject
A				
B				
C				
D				

4. For the proposals accepted for further analysis in part (3), compute the net present value. Use a rate of 12% and the present value of $1 table appearing in this chapter (Exhibit 1).
5. Compute the present value index for each of the proposals in part (4). Round to two decimal places.
6. Rank the proposals from most attractive to least attractive, based on the present values of net cash flows computed in part (4).
7. Rank the proposals from most attractive to least attractive, based on the present value indexes computed in part (5). Round to two decimal places.
8. Based on the analyses, comment on the relative attractiveness of the proposals ranked in parts (6) and (7).

Cases & Projects

You can access Cases & Projects online at **www.cengage.com/accounting/reeve**

Excel Success Special Activities

excel success

SA 26-1 Net present value

The Cambridge Company is considering expansion into the South. The expansion effort is expected to cost $215,000. The net cash flows expected from this investment are $25,000 per year for the first two years, and $40,000 per year for the remaining eight years of the project life.

a. Open the Excel file *SA26-1_2e.*

b. Determine the net present value of the expansion project assuming a minimum desired rate of return of 12% is desired.

c. When you have completed the analysis, perform a "save as," replacing the entire file name with the following:

SA26-1_2e[your first name initial]_[your last name]

excel success

SA 26-2 Net present value

Gold Software, Inc., is considering an investment in a new game product titled *EagleGolf.* The project will require an investment of $3,800,000. The five-year revenues and cash expenses over the product's life are estimated as follows:

	Revenues	Cash Expenditures
Year 1	$ 500,000	$ 750,000
Year 2	2,600,000	1,500,000
Year 3	3,400,000	1,700,000
Year 4	3,000,000	1,000,000
Year 5	2,100,000	800,000

a. Open the Excel file *SA26-2_2e.*

b. Assuming a minimum desired rate of return of 8%, determine the net present value of the project.

c. When you have completed the analysis, perform a "save as," replacing the entire file name with the following:

SA26-2_2e[your first name initial]_[your last name]

SA 26-3 Internal rate of return

Celtic Pride Productions, Inc., produces movies. It is estimated that a new movie, *Kelly's Revenge,* will cost $70 million to produce. The movie is estimated to generate net cash flows from ticket, DVD, and cable sales over the next four years as follows:

Year 1	$80,000,000
Year 2	45,000,000
Year 3	15,000,000
Year 4	10,000,000

a. Open the Excel file *SA26-3_2e.*

b. Determine the internal rate of return for this movie.

c. When you have completed the analysis, perform a "save as," replacing the entire file name with the following:

SA26-3_2e[your first name initial]_[your last name]

SA 26-4 Internal rate of return

Ryder Company is planning one of two alternative investments. The first investment requires a $60,000 investment and will generate net cash flows of $24,000 per year for five years. The second investment requires an investment of $90,000 and will generate net cash flows as follows:

	Net Cash Flows
Year 1	15,000
Year 2	35,000
Year 3	60,000
Year 4	80,000
Year 5	20,000

a. Open the Excel file *SA26-4_2e.*

b. Determine the internal rate of return for each alternative.

c. Indicate in the spreadsheet which alternative should be selected.

d. When you have completed the analysis, perform a "save as," replacing the entire file name with the following:

SA26-4_2e[your first name initial]_[your last name]

Appendices

Appendix A

Interest Tables

Present Value of $1 at Compound Interest Due in *n* Periods

Periods	5%	5.5%	6%	6.5%	7%	8%
1	0.95238	0.94787	0.94334	0.93897	0.93458	0.92593
2	0.90703	0.89845	0.89000	0.88166	0.87344	0.85734
3	0.86384	0.85161	0.83962	0.82785	0.81630	0.79383
4	0.82270	0.80722	0.79209	0.77732	0.76290	0.73503
5	0.78353	0.76513	0.74726	0.72988	0.71290	0.68058
6	0.74622	0.72525	0.70496	0.68533	0.66634	0.63017
7	0.71068	0.68744	0.66506	0.64351	0.62275	0.58349
8	0.67684	0.65160	0.62741	0.60423	0.58201	0.54027
9	0.64461	0.61763	0.59190	0.56735	0.54393	0.50025
10	0.61391	0.58543	0.55840	0.53273	0.50835	0.46319
11	0.58468	0.55491	0.52679	0.50021	0.47509	0.42888
12	0.55684	0.52598	0.49697	0.46968	0.44401	0.39711
13	0.53032	0.49856	0.46884	0.44102	0.41496	0.36770
14	0.50507	0.47257	0.44230	0.41410	0.38782	0.34046
15	0.48102	0.44793	0.41726	0.38883	0.36245	0.31524
16	0.45811	0.42458	0.39365	0.36510	0.33874	0.29189
17	0.43630	0.40245	0.37136	0.34281	0.31657	0.27027
18	0.41552	0.38147	0.35034	0.32189	0.29586	0.25025
19	0.39573	0.36158	0.33051	0.30224	0.27651	0.23171
20	0.37689	0.34273	0.31180	0.28380	0.25842	0.21455
21	0.35894	0.32486	0.29416	0.26648	0.24151	0.19866
22	0.34185	0.30793	0.27750	0.25021	0.22571	0.18394
23	0.32557	0.29187	0.26180	0.23494	0.21095	0.17032
24	0.31007	0.27666	0.24698	0.22060	0.19715	0.15770
25	0.29530	0.26223	0.23300	0.20714	0.18425	0.14602
26	0.28124	0.24856	0.21981	0.19450	0.17211	0.13520
27	0.26785	0.23560	0.20737	0.18263	0.16093	0.12519
28	0.25509	0.22332	0.19563	0.17148	0.15040	0.11591
29	0.24295	0.21168	0.18456	0.16101	0.14056	0.10733
30	0.23138	0.20064	0.17411	0.15119	0.13137	0.09938
31	0.22036	0.19018	0.16426	0.14196	0.12277	0.09202
32	0.20987	0.18027	0.15496	0.13329	0.11474	0.08520
33	0.19987	0.17087	0.14619	0.12516	0.10724	0.07889
34	0.19036	0.16196	0.13791	0.11752	0.10022	0.07304
35	0.18129	0.15352	0.13010	0.11035	0.09366	0.06764
40	0.14205	0.11746	0.09722	0.08054	0.06678	0.04603
45	0.11130	0.08988	0.07265	0.05879	0.04761	0.03133
50	0.08720	0.06877	0.05429	0.04291	0.03395	0.02132

Present Value of $1 at Compound Interest Due in *n* Periods

Periods	9%	10%	11%	12%	13%	14%
1	0.91743	0.90909	0.90090	0.89286	0.88496	0.87719
2	0.84168	0.82645	0.81162	0.79719	0.78315	0.76947
3	0.77218	0.75132	0.73119	0.71178	0.69305	0.67497
4	0.70842	0.68301	0.65873	0.63552	0.61332	0.59208
5	0.64993	0.62092	0.59345	0.56743	0.54276	0.51937
6	0.59627	0.56447	0.53464	0.50663	0.48032	0.45559
7	0.54703	0.51316	0.48166	0.45235	0.42506	0.39964
8	0.50187	0.46651	0.43393	0.40388	0.37616	0.35056
9	0.46043	0.42410	0.39092	0.36061	0.33288	0.30751
10	0.42241	0.38554	0.35218	0.32197	0.29459	0.26974
11	0.38753	0.35049	0.31728	0.28748	0.26070	0.23662
12	0.35554	0.31863	0.28584	0.25668	0.23071	0.20756
13	0.32618	0.28966	0.25751	0.22917	0.20416	0.18207
14	0.29925	0.26333	0.23199	0.20462	0.18068	0.15971
15	0.27454	0.23939	0.20900	0.18270	0.15989	0.14010
16	0.25187	0.21763	0.18829	0.16312	0.14150	0.12289
17	0.23107	0.19784	0.16963	0.14564	0.12522	0.10780
18	0.21199	0.17986	0.15282	0.13004	0.11081	0.09456
19	0.19449	0.16351	0.13768	0.11611	0.09806	0.08295
20	0.17843	0.14864	0.12403	0.10367	0.08678	0.07276
21	0.16370	0.13513	0.11174	0.09256	0.07680	0.06383
22	0.15018	0.12285	0.10067	0.08264	0.06796	0.05599
23	0.13778	0.11168	0.09069	0.07379	0.06014	0.04911
24	0.12640	0.10153	0.08170	0.06588	0.05323	0.04308
25	0.11597	0.09230	0.07361	0.05882	0.04710	0.03779
26	0.10639	0.08390	0.06631	0.05252	0.04168	0.03315
27	0.09761	0.07628	0.05974	0.04689	0.03689	0.02908
28	0.08955	0.06934	0.05382	0.04187	0.03264	0.02551
29	0.08216	0.06304	0.04849	0.03738	0.02889	0.02237
30	0.07537	0.05731	0.04368	0.03338	0.02557	0.01963
31	0.06915	0.05210	0.03935	0.02980	0.02262	0.01722
32	0.06344	0.04736	0.03545	0.02661	0.02002	0.01510
33	0.05820	0.04306	0.03194	0.02376	0.01772	0.01325
34	0.05331	0.03914	0.02878	0.02121	0.01568	0.01162
35	0.04899	0.03558	0.02592	0.01894	0.01388	0.01019
40	0.03184	0.02210	0.01538	0.01075	0.00753	0.00529
45	0.02069	0.01372	0.00913	0.00610	0.00409	0.00275
50	0.01345	0.00852	0.00542	0.00346	0.00222	0.00143

Present Value of Ordinary Annuity of $1 per Period

Periods	5%	5.5%	6%	6.5%	7%	8%
1	0.95238	0.94787	0.94340	0.93897	0.93458	0.92593
2	1.85941	1.84632	1.83339	1.82063	1.80802	1.78326
3	2.72325	2.69793	2.67301	2.64848	2.62432	2.57710
4	3.54595	3.50515	3.46511	3.42580	3.38721	3.31213
5	4.32948	4.27028	4.21236	4.15568	4.10020	3.99271
6	5.07569	4.99553	4.91732	4.84101	4.76654	4.62288
7	5.78637	5.68297	5.58238	5.48452	5.38923	5.20637
8	6.46321	6.33457	6.20979	6.08875	5.97130	5.74664
9	7.10782	6.95220	6.80169	6.65610	6.51523	6.24689
10	7.72174	7.53763	7.36009	7.18883	7.02358	6.71008
11	8.30641	8.09254	7.88688	7.68904	7.49867	7.13896
12	8.86325	8.61852	8.38384	8.15873	7.94269	7.53608
13	9.39357	9.11708	8.85268	8.59974	8.35765	7.90378
14	9.89864	9.58965	9.29498	9.01384	8.74547	8.22424
15	10.37966	10.03758	9.71225	9.40267	9.10791	8.55948
16	10.83777	10.46216	10.10590	9.76776	9.44665	8.85137
17	11.27407	10.86461	10.47726	10.11058	9.76322	9.12164
18	11.68959	11.24607	10.82760	10.43247	10.05909	9.37189
19	12.08532	11.60765	11.15812	10.73471	10.33560	9.60360
20	12.46221	11.95038	11.46992	11.01851	10.59401	9.81815
21	12.82115	12.27524	11.76408	11.28498	10.83553	10.01680
22	13.16300	12.58317	12.04158	11.53520	11.06124	10.20074
23	13.48857	12.87504	12.30338	11.77014	11.27219	10.37106
24	13.79864	13.15170	12.55036	11.99074	11.46933	10.52876
25	14.09394	13.41393	12.78336	12.19788	11.65358	10.67478
26	14.37518	13.66250	13.00317	12.39237	11.82578	10.80998
27	14.64303	13.89810	13.21053	12.57500	11.98671	10.93516
28	14.89813	14.12142	13.40616	12.74648	12.13711	11.05108
29	15.14107	14.33310	13.59072	12.90749	12.27767	11.15841
30	15.37245	14.53375	13.76483	13.05868	12.40904	11.25778
31	15.59281	14.72393	13.92909	13.20063	12.53181	11.34980
32	15.80268	14.90420	14.08404	13.33393	12.64656	11.43500
33	16.00255	15.07507	14.23023	13.45909	12.75379	11.51389
34	16.19290	15.23703	14.36814	13.57661	12.85401	11.58693
35	16.37420	15.39055	14.49825	13.68696	12.94767	11.65457
40	17.15909	16.04612	15.04630	14.14553	13.33171	11.92461
45	17.77407	16.54773	15.45583	14.48023	13.60552	12.10840
50	18.25592	16.93152	15.76186	14.72452	13.80075	12.23348

Present Value of Ordinary Annuity of $1 per Period

Periods	9%	10%	11%	12%	13%	14%
1	0.91743	0.90909	0.90090	0.89286	0.88496	0.87719
2	1.75911	1.73554	1.71252	1.69005	1.66810	1.64666
3	2.53130	2.48685	2.44371	2.40183	2.36115	2.32163
4	3.23972	3.16986	3.10245	3.03735	2.97447	2.91371
5	3.88965	3.79079	3.69590	3.60478	3.51723	3.43308
6	4.48592	4.35526	4.23054	4.11141	3.99755	3.88867
7	5.03295	4.86842	4.71220	4.56376	4.42261	4.28830
8	5.53482	5.33493	5.14612	4.96764	4.79677	4.63886
9	5.99525	5.75902	5.53705	5.32825	5.13166	4.94637
10	6.41766	6.14457	5.88923	5.65022	5.42624	5.21612
11	6.80519	6.49506	6.20652	5.93770	5.68694	5.45273
12	7.16072	6.81369	6.49236	6.19437	5.91765	5.66029
13	7.48690	7.10336	6.74987	6.42355	6.12181	5.84236
14	7.78615	7.36669	6.96187	6.62817	6.30249	6.00207
15	8.06069	7.60608	7.19087	6.81086	6.46238	6.14217
16	8.31256	7.82371	7.37916	6.97399	6.60388	6.26506
17	8.54363	8.02155	7.54879	7.11963	6.72909	6.37286
18	8.75562	8.20141	7.70162	7.24967	6.83991	6.46742
19	8.95012	8.36492	7.83929	7.36578	6.93797	6.55037
20	9.12855	8.51356	7.96333	7.46944	7.02475	6.62313
21	9.29224	8.64869	8.07507	7.56200	7.10155	6.68696
22	9.44242	8.77154	8.17574	7.64465	7.16951	6.74294
23	9.58021	8.88322	8.26643	7.71843	7.22966	6.79206
24	9.70661	8.98474	8.34814	7.78432	7.28288	6.83514
25	9.82258	9.07704	8.42174	7.84314	7.32998	6.87293
26	9.92897	9.16094	8.48806	7.89566	7.37167	6.90608
27	10.02658	9.23722	8.54780	7.94255	7.40856	6.93515
28	10.11613	9.30657	8.60162	7.98442	7.44120	6.96066
29	10.19828	9.36961	8.65011	8.02181	7.47009	6.98304
30	10.27365	9.42691	8.69379	8.05518	7.49565	7.00266
31	10.34280	9.47901	8.73315	8.08499	7.51828	7.01988
32	10.40624	9.52638	8.76860	8.11159	7.53830	7.03498
33	10.46444	9.56943	8.80054	8.13535	7.55602	7.04823
34	10.51784	9.60858	8.82932	8.15656	7.57170	7.05985
35	10.56682	9.64416	8.85524	8.17550	7.58557	7.07005
40	10.75736	9.77905	8.95105	8.24378	7.63438	7.10504
45	10.88118	9.86281	9.00791	8.28252	7.66086	7.12322
50	10.96168	9.91481	9.04165	8.30450	7.67524	7.13266

Appendix B

Reversing Entries

Some of the adjusting entries recorded at the end of the accounting period affect transactions that occur in the next period. In such cases, a reversing entry may be used to simplify the recording of the next period's transactions.

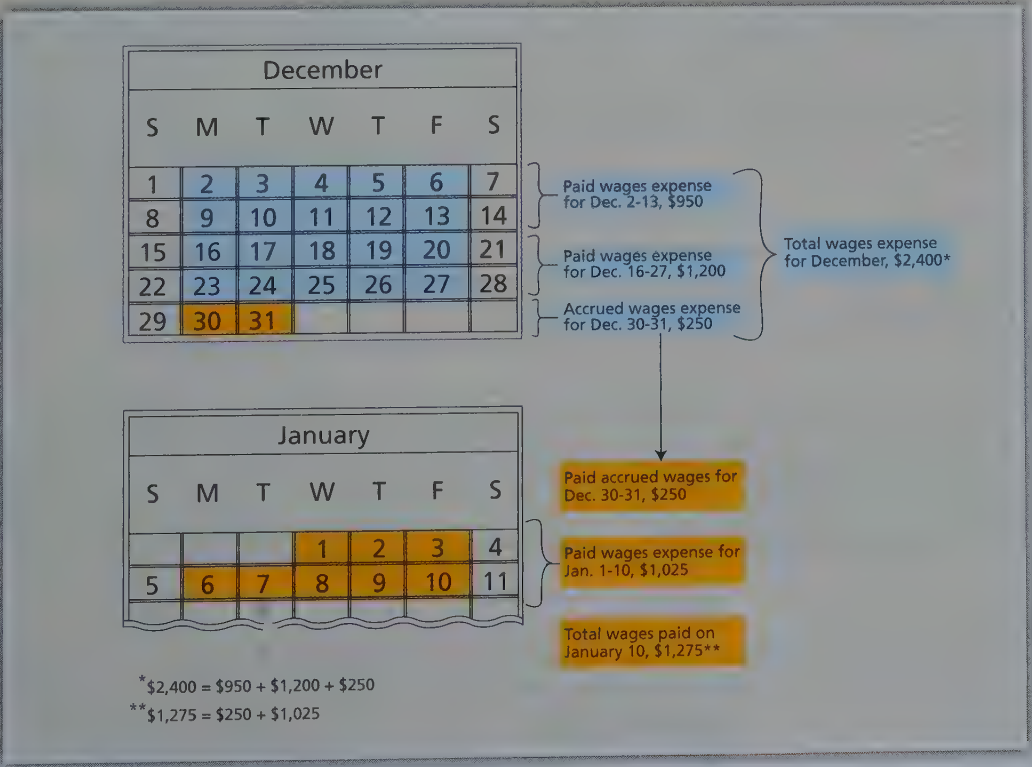
To illustrate, an adjusting entry for accrued wages expense affects the first payment of wages in the next period. Without using a reversing entry, Wages Payable must be debited for the accrued wages at the end of the preceding period. In addition, Wages Expense must also be debited for only that portion of the payroll that is an expense of the current period.

Using a reversing entry, however, simplifies the analysis and recording of the first wages payment in the next period. As the term implies, a *reversing entry* is the exact opposite of the related adjusting entry. The amounts and accounts are the same as the adjusting entry, but the debits and credits are reversed.

Reversing entries are illustrated by using the accrued wages for **NetSolutions** presented in Chapter 3. These data are summarized in Exhibit 1.

EXHIBIT 1

Accrued Wages



The adjusting entry for the accrued wages of December 30 and 31 is as follows:

2011					
Dec.	31	Wages Expense	51	250	
		Wages Payable	22		250
		Accrued wages.			

After the adjusting entry is recorded, Wages Expense will have a debit balance of $4,525 ($4,275 + $250), as shown on the top of page B-3. Wages Payable will have a credit balance of $250, as shown on page B-3.

After the closing entries are recorded, Wages Expense will have a zero balance. However, since Wages Payable is a liability account, it is not closed. Thus, Wages Payable will have a credit balance of $250 as of January 1, 2012.

Without recording a reversing entry, the payment of the $1,275 payroll on January 10 would be recorded as follows:

2012					
Jan.	10	Wages Payable	22	250	
		Wages Expense	51	1,025	
		Cash	11		1,275

As shown above, to record the January 10 payroll correctly Wages Payable must be debited for $250. This means that the employee who records the January 10 payroll must refer to the December 31, 2011, adjusting entry or to the ledger to determine the amount to debit Wages Payable.

Because the January 10 payroll is not recorded in the normal manner, there is a greater chance that an error may occur. This chance of error is reduced by recording a reversing entry as of the first day of the next period. For example, the reversing entry for the accrued wages expense would be recorded on January 1, 2012, as follows:

2012					
Jan.	1	Wages Payable	22	250	
		Wages Expense	51		250
		Reversing entry.			

The preceding reversing entry transfers the $250 liability from Wages Payable to the credit side of Wages Expense. The nature of the $250 is unchanged—it is still a liability. However, because of its unusual nature, an explanation is written under the reversing entry.

When the payroll is paid on January 10, the following entry is recorded:

Jan.	10	Wages Expense	51	1,275	
		Cash	11		1,275

After the January 10 payroll is recorded, Wages Expense has a debit balance of $1,025. This is the wages expense for the period January 1–10, 2012.

Wages Payable and Wages Expense after posting the adjusting, closing, and reversing entries are shown on the next page.

Account *Wages Payable* Account No. 22

Date		Item	Post. Ref.	Debit	Credit	Balance	
						Debit	Credit
2011							
Dec.	31	Adjusting	5		250		250
2012							
Jan.	1	Reversing	7	250		—	—

Account *Wages Expense* Account No. 51

Date		Item	Post. Ref.	Debit	Credit	Balance	
						Debit	Credit
2011							
Nov.	30		1	2,125		2,125	
Dec.	13		3	950		3,075	
	27		3	1,200		4,275	
	31	Adjusting	5	250		4,525	
	31	Closing	6		4,525	—	—
2012							
Jan.	1	Reversing	7		250		250
	10		7	1,275		1,025	

In addition to accrued expenses (accrued liabilities), reversing entries are also used for accrued revenues (accrued assets). To illustrate, the reversing entry for NetSolutions' accrued fees earned as of December 31, 2011, is as follows:

Jan.	1	Fees Earned	41	500	
		Accounts Receivable	12		500
		Reversing entry.			

The use of reversing entries is optional. However, in computerized accounting systems, data entry employees often input routine accounting entries. In such cases, reversing entries may be useful in avoiding errors.

EX B-1 Adjusting and reversing entries

On the basis of the following data, (a) journalize the adjusting entries at December 31, the end of the current fiscal year, and (b) journalize the reversing entries on January 1, the first day of the following year.

1. Sales salaries are uniformly $21,000 for a five-day workweek, ending on Friday. The last payday of the year was Friday, December 26.
2. Accrued fees earned but not recorded at December 31, $33,750.

EX B-2 Adjusting and reversing entries

On the basis of the following data, (a) journalize the adjusting entries at June 30, the end of the current fiscal year, and (b) journalize the reversing entries on July 1, the first day of the following year.

1. Wages are uniformly $48,000 for a five-day workweek, ending on Friday. The last payday of the year was Friday, June 27.
2. Accrued fees earned but not recorded at June 30, $23,900.

EX B-3 Entries posted to the wages expense account

Portions of the wages expense account of a business are shown below.

a. Indicate the nature of the entry (payment, adjusting, closing, reversing) from which each numbered posting was made.

b. Journalize the complete entry from which each numbered posting was made.

Account ***Wages Expense*** **Account No. 53**

Date	Item	Post. Ref.	Dr.	Cr.	Balance Dr.	Balance Cr.
2011						
Dec. 26	(1)	125	32,000		1,600,000	
31	(2)	126	19,200		1,619,200	
31	(3)	127		1,619,200	—	—
2012						
Jan. 1	(4)	128		19,200		19,200
2	(5)	129	32,000		12,800	

EX B-4 Entries posted to the salaries expense account

Portions of the salaries expense account of a business are shown below.

Account ***Salaries Expense*** **Account No. 53**

Date	Item	Post. Ref.	Dr.	Cr.	Balance Dr.	Balance Cr.
2011						
Dec. 27	(1)	29	18,500		897,800	
31	(2)	30	7,400		905,200	
31	(3)	31		905,200	—	—
2012						
Jan. 1	(4)	32		7,400		7,400
2	(5)	33	18,500		11,100	

a. Indicate the nature of the entry (payment, adjusting, closing, reversing) from which each numbered posting was made.

b. Journalize the complete entry from which each numbered posting was made.

Appendix C

NIKE INC (NKE)

ONE BOWERMAN DR
BEAVERTON, OR, 97005–6453
503–671–3173
www.nikebiz.com

10–K

Annual report pursuant to section 13 and 15(d)
Filed on 7/20/2010
Filed Period 5/31/2010

THOMSON REUTERS

Westlaw. BUSINESS

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An Internal Audit department reviews the results of its work with the Audit Committee of the Board of Directors, presently consisting of three outside directors. The Audit Committee is responsible for the appointment of the independent registered public accounting firm and reviews with the independent registered public accounting firm, management and the internal audit staff, the scope and the results of the annual examination, the effectiveness of the accounting control system and other matters relating to the financial affairs of NIKE as they deem appropriate. The independent registered public accounting firm and the internal auditors have full access to the Committee, with and without the presence of management, to discuss any appropriate matters.

Management's Annual Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a–15(f) and Rule 15d–15(f) of the Securities Exchange Act of 1934, as amended. Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the financial statements for external purposes in accordance with generally accepted accounting principles in the United States of America. Internal control over financial reporting includes those policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of assets of the company that could have a material effect on the financial statements.

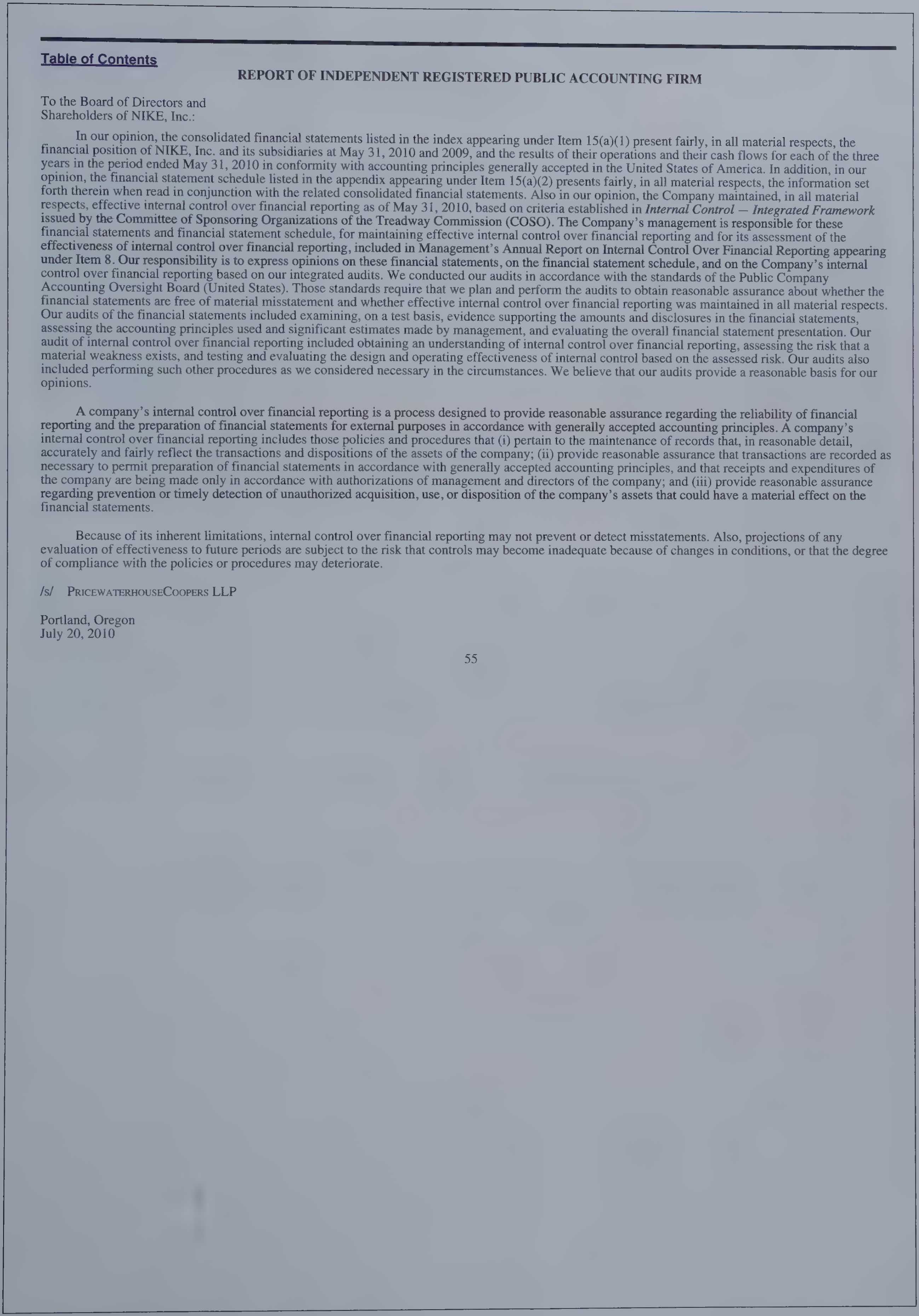
While "reasonable assurance" is a high level of assurance, it does not mean absolute assurance. Because of its inherent limitations, internal control over financial reporting may not prevent or detect every misstatement and instance of fraud. Controls are susceptible to manipulation, especially in instances of fraud caused by the collusion of two or more people, including our senior management. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, our management conducted an evaluation of the effectiveness of our internal control over financial reporting based upon the framework in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on the results of our evaluation, our management concluded that our internal control over financial reporting was effective as of May 31, 2010.

PricewaterhouseCoopers LLP, an independent registered public accounting firm, has audited (1) the consolidated financial statements and (2) the effectiveness of our internal control over financial reporting as of May 31, 2010, as stated in their report herein.

Mark G. Parker
Chief Executive Officer and President

Donald W. Blair
Chief Financial Officer



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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and
Shareholders of NIKE, Inc.:

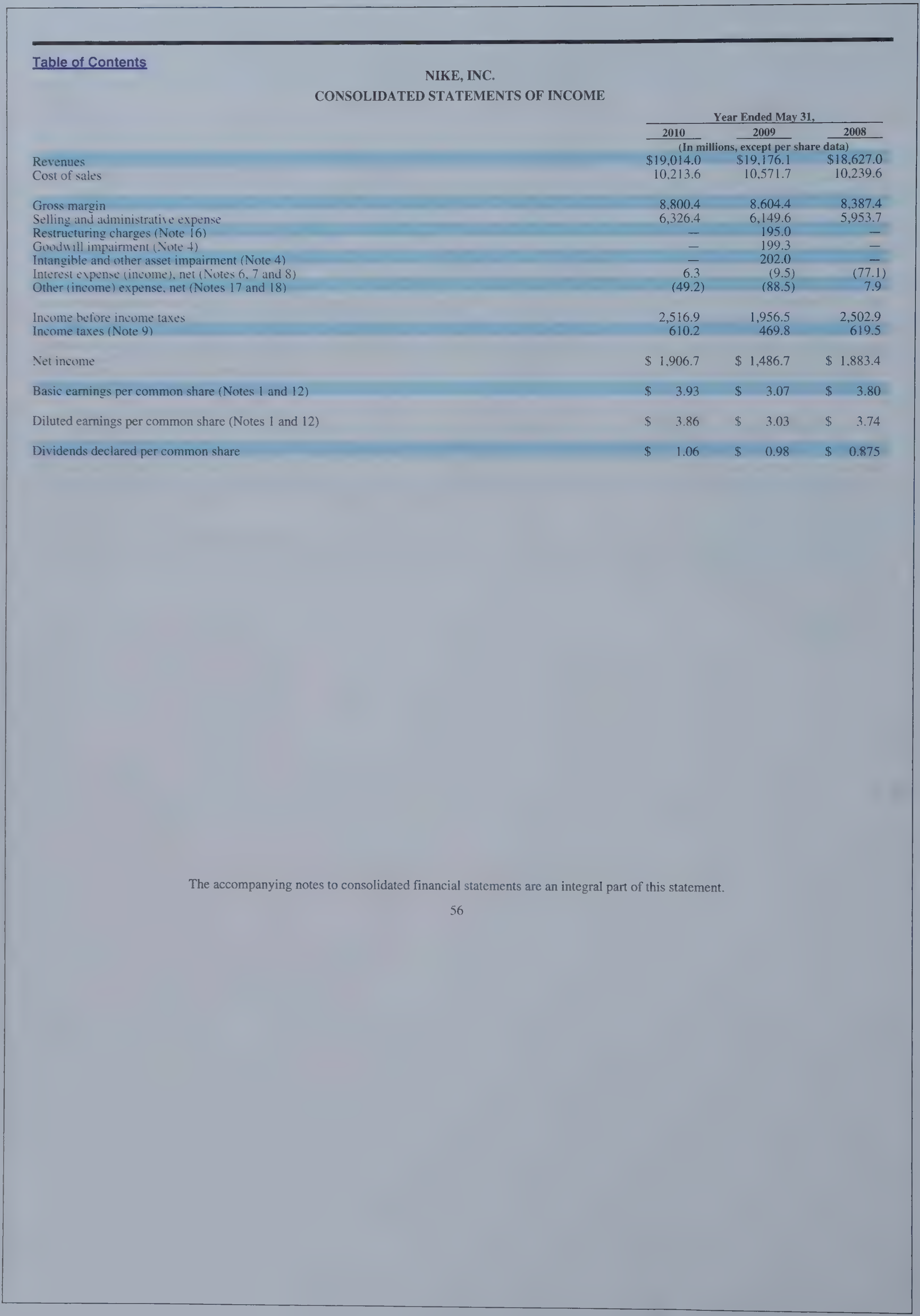
In our opinion, the consolidated financial statements listed in the index appearing under Item 15(a)(1) present fairly, in all material respects, the financial position of NIKE, Inc. and its subsidiaries at May 31, 2010 and 2009, and the results of their operations and their cash flows for each of the three years in the period ended May 31, 2010 in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedule listed in the appendix appearing under Item 15(a)(2) presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of May 31, 2010, based on criteria established in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedule, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Annual Report on Internal Control Over Financial Reporting appearing under Item 8. Our responsibility is to express opinions on these financial statements, on the financial statement schedule, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PRICEWATERHOUSECOOPERS LLP

Portland, Oregon
July 20, 2010



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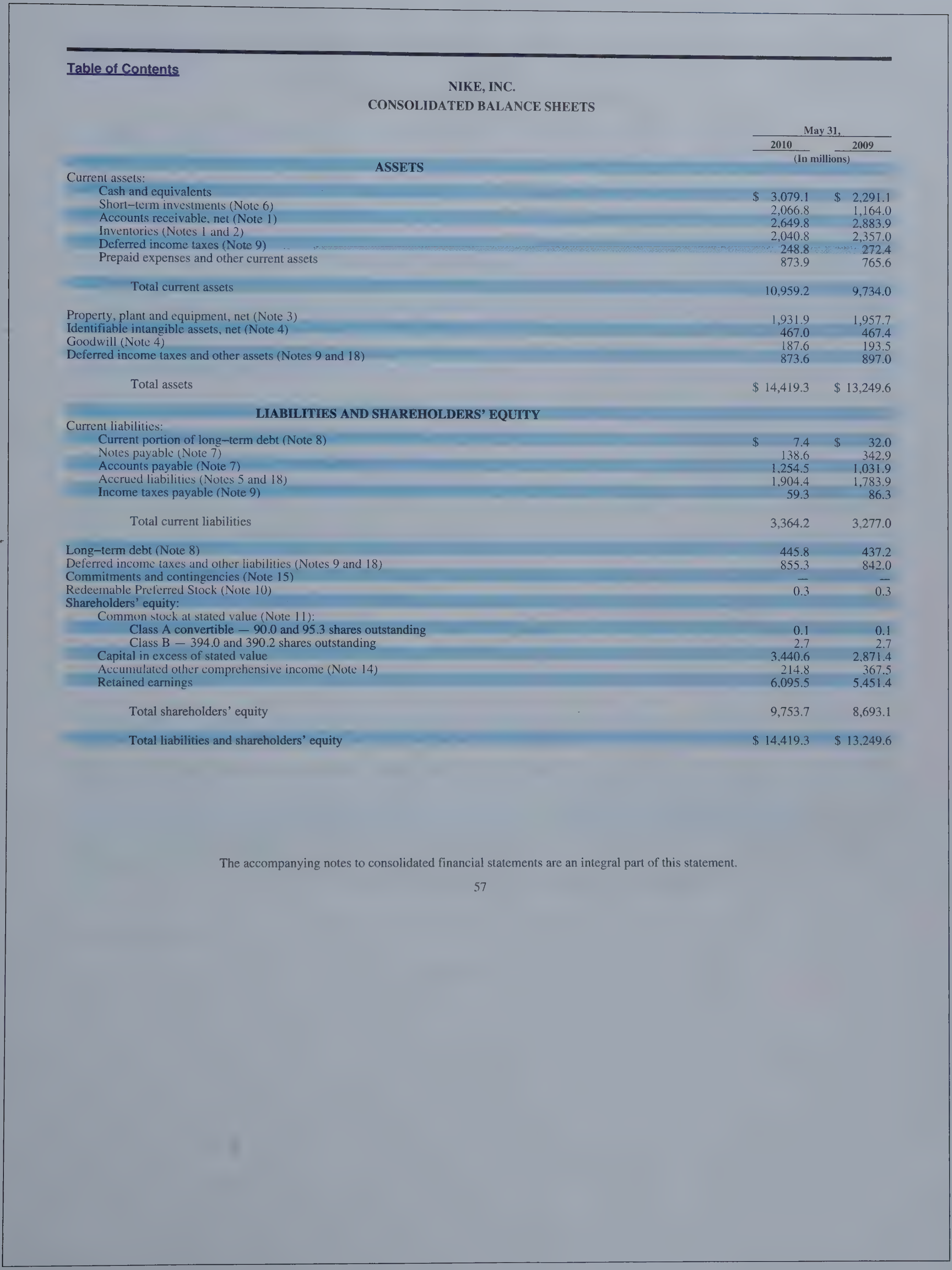
NIKE, INC.
CONSOLIDATED STATEMENTS OF INCOME

	Year Ended May 31,		
	2010	2009	2008
	(In millions, except per share data)		
Revenues	$19,014.0	$19,176.1	$18,627.0
Cost of sales	10,213.6	10,571.7	10,239.6
Gross margin	8,800.4	8,604.4	8,387.4
Selling and administrative expense	6,326.4	6,149.6	5,953.7
Restructuring charges (Note 16)	—	195.0	—
Goodwill impairment (Note 4)	—	199.3	—
Intangible and other asset impairment (Note 4)	—	202.0	—
Interest expense (income), net (Notes 6, 7 and 8)	6.3	(9.5)	(77.1)
Other (income) expense, net (Notes 17 and 18)	(49.2)	(88.5)	7.9
Income before income taxes	2,516.9	1,956.5	2,502.9
Income taxes (Note 9)	610.2	469.8	619.5
Net income	$ 1,906.7	$ 1,486.7	$ 1,883.4
Basic earnings per common share (Notes 1 and 12)	$ 3.93	$ 3.07	$ 3.80
Diluted earnings per common share (Notes 1 and 12)	$ 3.86	$ 3.03	$ 3.74
Dividends declared per common share	$ 1.06	$ 0.98	$ 0.875

The accompanying notes to consolidated financial statements are an integral part of this statement.

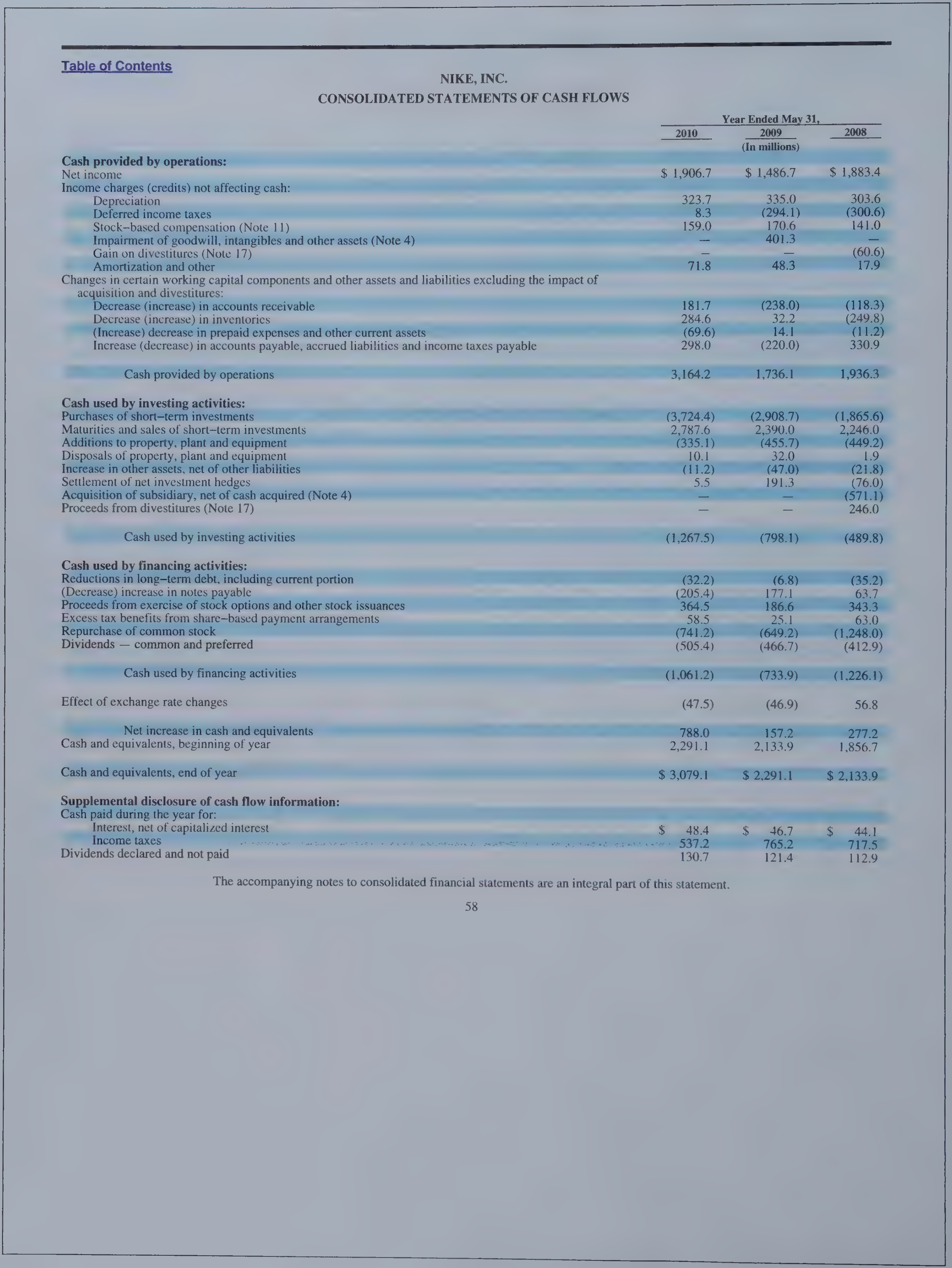


NIKE, INC.

CONSOLIDATED BALANCE SHEETS

	May 31, 2010	May 31, 2009
	(In millions)	
ASSETS		
Current assets:		
Cash and equivalents	$ 3,079.1	$ 2,291.1
Short–term investments (Note 6)	2,066.8	1,164.0
Accounts receivable, net (Note 1)	2,649.8	2,883.9
Inventories (Notes 1 and 2)	2,040.8	2,357.0
Deferred income taxes (Note 9)	248.8	272.4
Prepaid expenses and other current assets	873.9	765.6
Total current assets	10,959.2	9,734.0
Property, plant and equipment, net (Note 3)	1,931.9	1,957.7
Identifiable intangible assets, net (Note 4)	467.0	467.4
Goodwill (Note 4)	187.6	193.5
Deferred income taxes and other assets (Notes 9 and 18)	873.6	897.0
Total assets	$ 14,419.3	$ 13,249.6
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Current portion of long–term debt (Note 8)	$ 7.4	$ 32.0
Notes payable (Note 7)	138.6	342.9
Accounts payable (Note 7)	1,254.5	1,031.9
Accrued liabilities (Notes 5 and 18)	1,904.4	1,783.9
Income taxes payable (Note 9)	59.3	86.3
Total current liabilities	3,364.2	3,277.0
Long–term debt (Note 8)	445.8	437.2
Deferred income taxes and other liabilities (Notes 9 and 18)	855.3	842.0
Commitments and contingencies (Note 15)	—	—
Redeemable Preferred Stock (Note 10)	0.3	0.3
Shareholders' equity:		
Common stock at stated value (Note 11):		
Class A convertible — 90.0 and 95.3 shares outstanding	0.1	0.1
Class B — 394.0 and 390.2 shares outstanding	2.7	2.7
Capital in excess of stated value	3,440.6	2,871.4
Accumulated other comprehensive income (Note 14)	214.8	367.5
Retained earnings	6,095.5	5,451.4
Total shareholders' equity	9,753.7	8,693.1
Total liabilities and shareholders' equity	$ 14,419.3	$ 13,249.6

The accompanying notes to consolidated financial statements are an integral part of this statement.



NIKE, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended May 31,		
	2010	2009	2008
		(In millions)	
Cash provided by operations:			
Net income	$ 1,906.7	$ 1,486.7	$ 1,883.4
Income charges (credits) not affecting cash:			
Depreciation	323.7	335.0	303.6
Deferred income taxes	8.3	(294.1)	(300.6)
Stock–based compensation (Note 11)	159.0	170.6	141.0
Impairment of goodwill, intangibles and other assets (Note 4)	—	401.3	—
Gain on divestitures (Note 17)	—	—	(60.6)
Amortization and other	71.8	48.3	17.9
Changes in certain working capital components and other assets and liabilities excluding the impact of acquisition and divestitures:			
Decrease (increase) in accounts receivable	181.7	(238.0)	(118.3)
Decrease (increase) in inventories	284.6	32.2	(249.8)
(Increase) decrease in prepaid expenses and other current assets	(69.6)	14.1	(11.2)
Increase (decrease) in accounts payable, accrued liabilities and income taxes payable	298.0	(220.0)	330.9
Cash provided by operations	3,164.2	1,736.1	1,936.3
Cash used by investing activities:			
Purchases of short–term investments	(3,724.4)	(2,908.7)	(1,865.6)
Maturities and sales of short–term investments	2,787.6	2,390.0	2,246.0
Additions to property, plant and equipment	(335.1)	(455.7)	(449.2)
Disposals of property, plant and equipment	10.1	32.0	1.9
Increase in other assets, net of other liabilities	(11.2)	(47.0)	(21.8)
Settlement of net investment hedges	5.5	191.3	(76.0)
Acquisition of subsidiary, net of cash acquired (Note 4)	—	—	(571.1)
Proceeds from divestitures (Note 17)	—	—	246.0
Cash used by investing activities	(1,267.5)	(798.1)	(489.8)
Cash used by financing activities:			
Reductions in long–term debt, including current portion	(32.2)	(6.8)	(35.2)
(Decrease) increase in notes payable	(205.4)	177.1	63.7
Proceeds from exercise of stock options and other stock issuances	364.5	186.6	343.3
Excess tax benefits from share–based payment arrangements	58.5	25.1	63.0
Repurchase of common stock	(741.2)	(649.2)	(1,248.0)
Dividends — common and preferred	(505.4)	(466.7)	(412.9)
Cash used by financing activities	(1,061.2)	(733.9)	(1,226.1)
Effect of exchange rate changes	(47.5)	(46.9)	56.8
Net increase in cash and equivalents	788.0	157.2	277.2
Cash and equivalents, beginning of year	2,291.1	2,133.9	1,856.7
Cash and equivalents, end of year	$ 3,079.1	$ 2,291.1	$ 2,133.9
Supplemental disclosure of cash flow information:			
Cash paid during the year for:			
Interest, net of capitalized interest	$ 48.4	$ 46.7	$ 44.1
Income taxes	537.2	765.2	717.5
Dividends declared and not paid	130.7	121.4	112.9

The accompanying notes to consolidated financial statements are an integral part of this statement.

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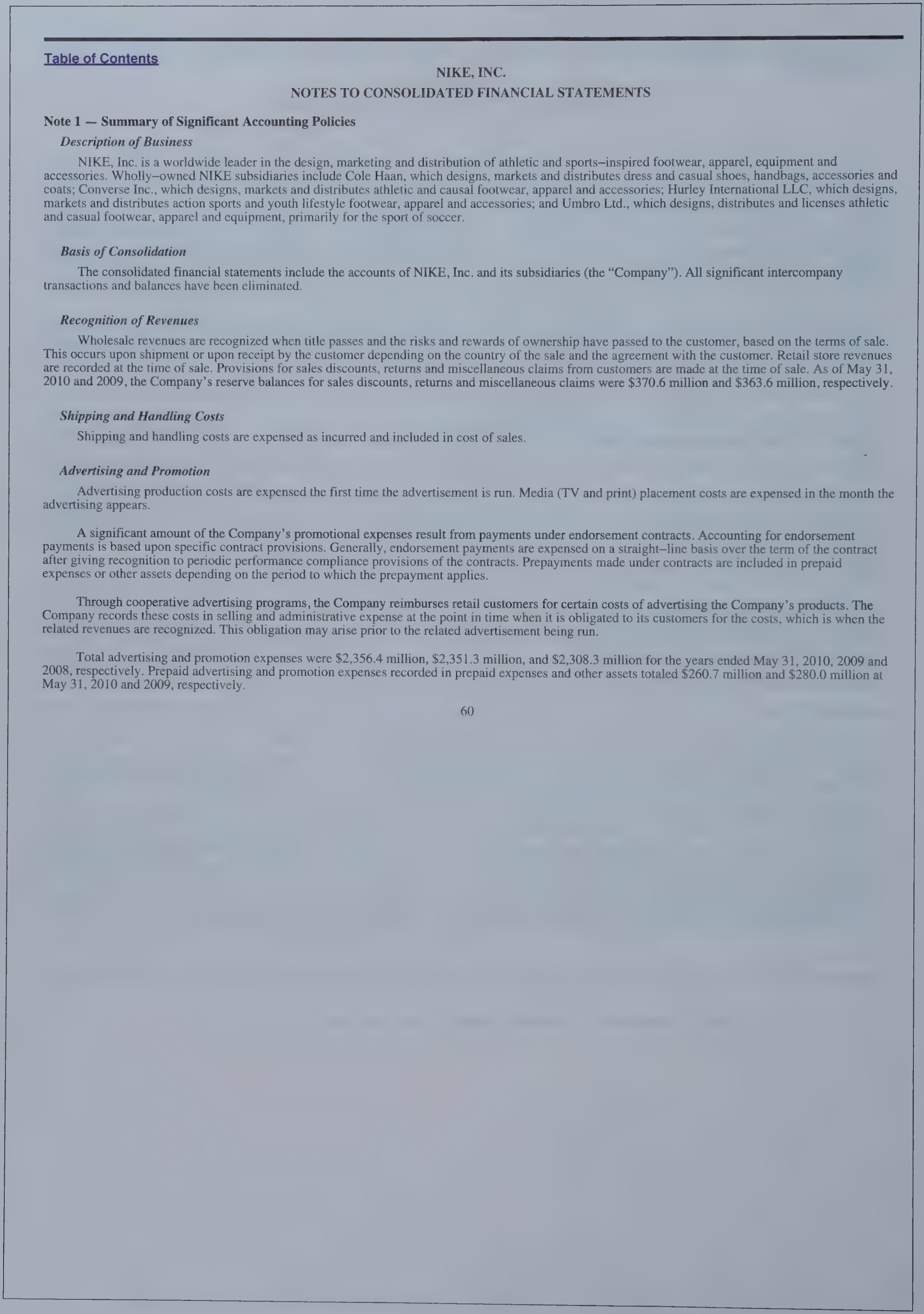
NIKE, INC.
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

	Common Stock				Capital in Excess of Stated Value	Accumulated Other Comprehensive Income	Retained Earnings	Total
	Class A		Class B					
	Shares	Amount	Shares	Amount				
				(In millions, except per share data)				
Balance at May 31, 2007	117.6	$ 0.1	384.1	$ 2.7	$ 1,960.0	$ 177.4	$ 4,885.2	$ 7,025.4
Stock options exercised			9.1		372.2			372.2
Conversion to Class B Common Stock	(20.8)		20.8					—
Repurchase of Class B Common Stock			(20.6)		(12.3)		(1,235.7)	(1,248.0)
Dividends on Common stock ($0.875 per share)							(432.8)	(432.8)
Issuance of shares to employees			1.0		39.2			39.2
Stock–based compensation (Note 11):					141.0			141.0
Forfeiture of shares from employees			(0.1)		(2.3)		(1.1)	(3.4)
Comprehensive income (Note 14):								
Net income							1,883.4	1,883.4
Other comprehensive income:								
Foreign currency translation and other (net of tax expense of $101.6)						211.9		211.9
Realized foreign currency translation gain due to divestiture (Note 17)						(46.3)		(46.3)
Net loss on cash flow hedges (net of tax benefit of $67.7)						(175.8)		(175.8)
Net loss on net investment hedges (net of tax benefit of $25.1)						(43.5)		(43.5)
Reclassification to net income of previously deferred losses related to hedge derivatives (net of tax benefit of $49.6)						127.7		127.7
Total Comprehensive income						74.0	1,883.4	1,957.4
Adoption of FIN 48 (Note 1 and 9)							(15.6)	(15.6)
Adoption of EITF 06–2 Sabbaticals (net of tax benefit of $6.2)							(10.1)	(10.1)
Balance at May 31, 2008	96.8	$ 0.1	394.3	$ 2.7	$ 2,497.8	$ 251.4	$ 5,073.3	$ 7,825.3
Stock options exercised			4.0		167.2			167.2
Conversion to Class B Common Stock	(1.5)		1.5					—
Repurchase of Class B Common Stock			(10.6)		(6.3)		(632.7)	(639.0)
Dividends on Common stock ($0.98 per share)							(475.2)	(475.2)
Issuance of shares to employees			1.1		45.4			45.4
Stock–based compensation (Note 11):					170.6			170.6
Forfeiture of shares from employees			(0.1)		(3.3)		(0.7)	(4.0)
Comprehensive income (Note 14):								
Net income							1,486.7	1,486.7
Other comprehensive income:								
Foreign currency translation and other (net of tax benefit of $177.5)						(335.3)		(335.3)
Net gain on cash flow hedges (net of tax expense of $167.5)						453.6		453.6
Net gain on net investment hedges (net of tax expense of $55.4)						106.0		106.0
Reclassification to net income of previously deferred net gains related to hedge derivatives (net of tax expense of $39.6)						(108.2)		(108.2)
Total Comprehensive income						116.1	1,486.7	1,602.8
Balance at May 31, 2009	95.3	$ 0.1	390.2	$ 2.7	$ 2,871.4	$ 367.5	$ 5,451.4	$ 8,693.1
Stock options exercised			8.6		379.6			379.6
Conversion to Class B Common Stock	(5.3)		5.3					—
Repurchase of Class B Common Stock			(11.3)		(6.8)		(747.5)	(754.3)
Dividends on Common stock ($1.06 per share)							(514.8)	(514.8)
Issuance of shares to employees			1.3		40.0			40.0
Stock–based compensation (Note 11):					159.0			159.0
Forfeiture of shares from employees			(0.1)		(2.6)		(0.3)	(2.9)
Comprehensive income (Note 14):								
Net income							1,906.7	1,906.7
Other comprehensive income:								
Foreign currency translation and other (net of tax benefit of $71.8)						(159.2)		(159.2)
Net gain on cash flow hedges (net of tax expense of $27.8)						87.1		87.1
Net gain on net investment hedges (net of tax expense of $21.2)						44.8		44.8
Reclassification to net income of previously deferred net gains related to hedge derivatives (net of tax expense of $41.7)						(121.6)		(121.6)
Reclassification of ineffective hedge gains to net income (net of tax expense of $1.4)						(3.8)		(3.8)
Total Comprehensive income						(152.7)	1,906.7	1,754.0
Balance at May 31, 2010	90.0	$ 0.1	394.0	$ 2.7	$ 3,440.6	$ 214.8	$ 6,095.5	$ 9,753.7

The accompanying notes to consolidated financial statements are an integral part of this statement.



NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1 — Summary of Significant Accounting Policies

Description of Business

NIKE, Inc. is a worldwide leader in the design, marketing and distribution of athletic and sports–inspired footwear, apparel, equipment and accessories. Wholly–owned NIKE subsidiaries include Cole Haan, which designs, markets and distributes dress and casual shoes, handbags, accessories and coats; Converse Inc., which designs, markets and distributes athletic and causal footwear, apparel and accessories; Hurley International LLC, which designs, markets and distributes action sports and youth lifestyle footwear, apparel and accessories; and Umbro Ltd., which designs, distributes and licenses athletic and casual footwear, apparel and equipment, primarily for the sport of soccer.

Basis of Consolidation

The consolidated financial statements include the accounts of NIKE, Inc. and its subsidiaries (the "Company"). All significant intercompany transactions and balances have been eliminated.

Recognition of Revenues

Wholesale revenues are recognized when title passes and the risks and rewards of ownership have passed to the customer, based on the terms of sale. This occurs upon shipment or upon receipt by the customer depending on the country of the sale and the agreement with the customer. Retail store revenues are recorded at the time of sale. Provisions for sales discounts, returns and miscellaneous claims from customers are made at the time of sale. As of May 31, 2010 and 2009, the Company's reserve balances for sales discounts, returns and miscellaneous claims were $370.6 million and $363.6 million, respectively.

Shipping and Handling Costs

Shipping and handling costs are expensed as incurred and included in cost of sales.

Advertising and Promotion

Advertising production costs are expensed the first time the advertisement is run. Media (TV and print) placement costs are expensed in the month the advertising appears.

A significant amount of the Company's promotional expenses result from payments under endorsement contracts. Accounting for endorsement payments is based upon specific contract provisions. Generally, endorsement payments are expensed on a straight–line basis over the term of the contract after giving recognition to periodic performance compliance provisions of the contracts. Prepayments made under contracts are included in prepaid expenses or other assets depending on the period to which the prepayment applies.

Through cooperative advertising programs, the Company reimburses retail customers for certain costs of advertising the Company's products. The Company records these costs in selling and administrative expense at the point in time when it is obligated to its customers for the costs, which is when the related revenues are recognized. This obligation may arise prior to the related advertisement being run.

Total advertising and promotion expenses were $2,356.4 million, $2,351.3 million, and $2,308.3 million for the years ended May 31, 2010, 2009 and 2008, respectively. Prepaid advertising and promotion expenses recorded in prepaid expenses and other assets totaled $260.7 million and $280.0 million at May 31, 2010 and 2009, respectively.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Cash and Equivalents

Cash and equivalents represent cash and short–term, highly liquid investments with maturities of three months or less at date of purchase. The carrying amounts reflected in the consolidated balance sheet for cash and equivalents approximate fair value.

Short–term Investments

Short–term investments consist of highly liquid investments, primarily commercial paper, U.S. treasury, U.S. agency, and corporate debt securities, with maturities over three months from the date of purchase. Debt securities that the Company has the ability and positive intent to hold to maturity are carried at amortized cost. At May 31, 2010 and 2009, the Company did not hold any short–term investments that were classified as held–to–maturity.

At May 31, 2010 and 2009, short–term investments consisted of available–for–sale securities. Available–for–sale securities are recorded at fair value with unrealized gains and losses reported, net of tax, in other comprehensive income, unless unrealized losses are determined to be other than temporary. The Company considers all available–for–sale securities, including those with maturity dates beyond 12 months, as available to support current operational liquidity needs and therefore classifies all securities with maturity dates beyond three months as current assets within short–term investments on the consolidated balance sheet.

See Note 6 — Fair Value Measurements for more information on the Company's short term investments.

Allowance for Uncollectible Accounts Receivable

Accounts receivable consists primarily of amounts receivable from customers. We make ongoing estimates relating to the collectability of our accounts receivable and maintain an allowance for estimated losses resulting from the inability of our customers to make required payments. In determining the amount of the allowance, we consider our historical level of credit losses and make judgments about the creditworthiness of significant customers based on ongoing credit evaluations. Accounts receivable with anticipated collection dates greater than 12 months from the balance sheet date and related allowances are considered non–current and recorded in other assets. The allowance for uncollectible accounts receivable was $116.7 million and $110.8 million at May 31, 2010 and 2009, respectively, of which $43.1 million and $36.9 million was classified as long–term and recorded in other assets.

Inventory Valuation

Inventories are stated at lower of cost or market and valued on a first–in, first–out ("FIFO") or moving average cost basis.

Property, Plant and Equipment and Depreciation

Property, plant and equipment are recorded at cost. Depreciation for financial reporting purposes is determined on a straight–line basis for buildings and leasehold improvements over 2 to 40 years and for machinery and equipment over 2 to 15 years. Computer software (including, in some cases, the cost of internal labor) is depreciated on a straight–line basis over 3 to 10 years.

Impairment of Long–Lived Assets

The Company reviews the carrying value of long–lived assets or asset groups to be used in operations whenever events or changes in circumstances indicate that the carrying amount of the assets might not be

recoverable. Factors that would necessitate an impairment assessment include a significant adverse change in the extent or manner in which an asset is used, a significant adverse change in legal factors or the business climate that could affect the value of the asset, or a significant decline in the observable market value of an asset, among others. If such facts indicate a potential impairment, the Company would assess the recoverability of an asset group by determining if the carrying value of the asset group exceeds the sum of the projected undiscounted cash flows expected to result from the use and eventual disposition of the assets over the remaining economic life of the primary asset in the asset group. If the recoverability test indicates that the carrying value of the asset group is not recoverable, the Company will estimate the fair value of the asset group using appropriate valuation methodologies which would typically include an estimate of discounted cash flows. Any impairment would be measured as the difference between the asset groups carrying amount and its estimated fair value.

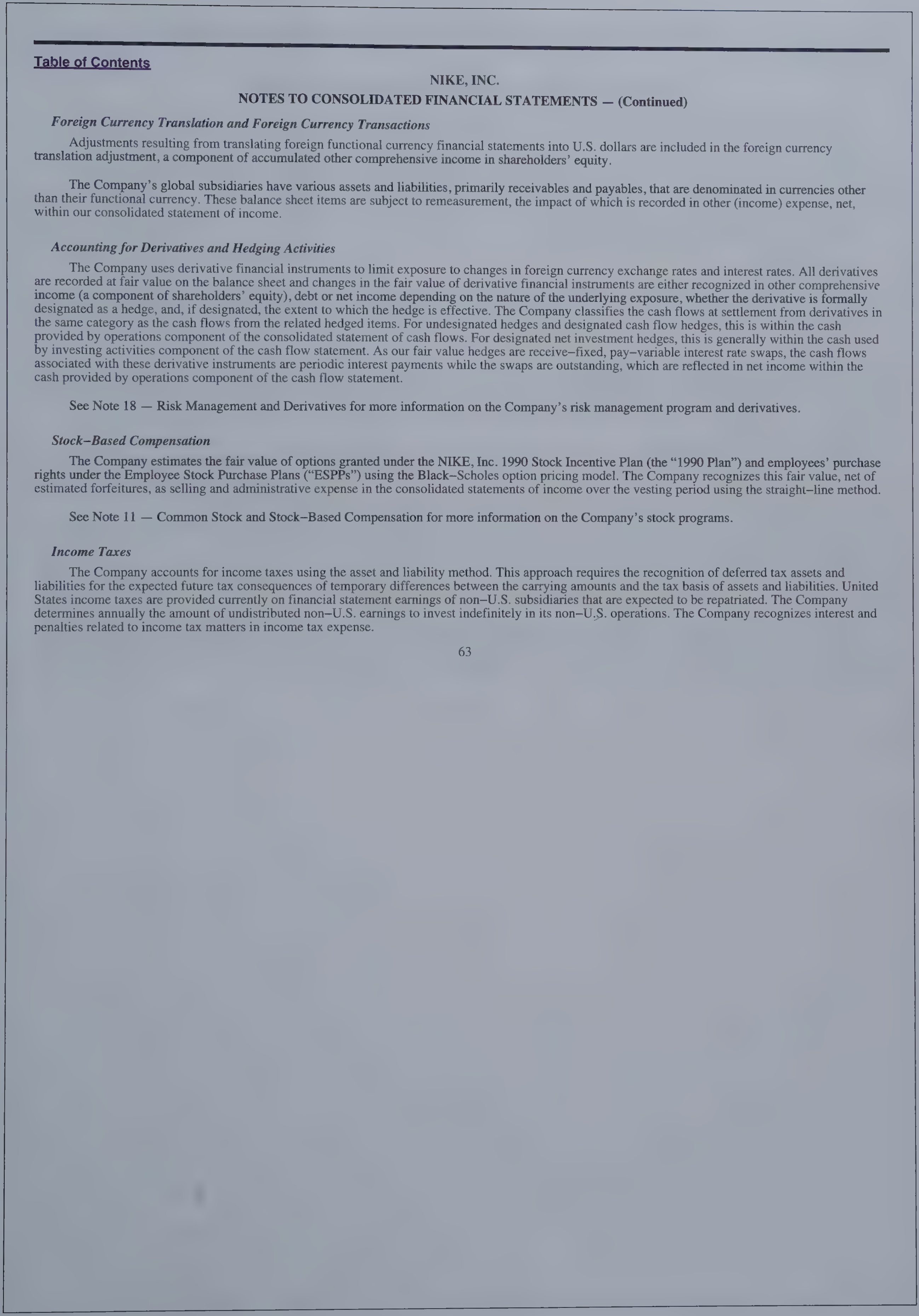
Identifiable Intangible Assets and Goodwill

The Company performs annual impairment tests on goodwill and intangible assets with indefinite lives in the fourth quarter of each fiscal year, or when events occur or circumstances change that would, more likely than not, reduce the fair value of a reporting unit or an intangible asset with an indefinite life below its carrying value. Events or changes in circumstances that may trigger interim impairment reviews include significant changes in business climate, operating results, planned investments in the reporting unit, or an expectation that the carrying amount may not be recoverable, among other factors. The impairment test requires the Company to estimate the fair value of its reporting units. If the carrying value of a reporting unit exceeds its fair value, the goodwill of that reporting unit is potentially impaired and the Company proceeds to step two of the impairment analysis. In step two of the analysis, the Company measures and records an impairment loss equal to the excess of the carrying value of the reporting unit's goodwill over its implied fair value should such a circumstance arise.

The Company generally bases its measurement of fair value of a reporting unit on a blended analysis of the present value of future discounted cash flows and the market valuation approach. The discounted cash flows model indicates the fair value of the reporting unit based on the present value of the cash flows that the Company expects the reporting unit to generate in the future. The Company's significant estimates in the discounted cash flows model include: its weighted average cost of capital; long–term rate of growth and profitability of the reporting unit's business; and working capital effects. The market valuation approach indicates the fair value of the business based on a comparison of the reporting unit to comparable publicly traded companies in similar lines of business. Significant estimates in the market valuation approach model include identifying similar companies with comparable business factors such as size, growth, profitability, risk and return on investment, and assessing comparable revenue and operating income multiples in estimating the fair value of the reporting unit.

The Company believes the weighted use of discounted cash flows and the market valuation approach is the best method for determining the fair value of its reporting units because these are the most common valuation methodologies used within its industry; and the blended use of both models compensates for the inherent risks associated with either model if used on a stand–alone basis.

Indefinite–lived intangible assets primarily consist of acquired trade names and trademarks. In measuring the fair value for these intangible assets, the Company utilizes the relief–from–royalty method. This method assumes that trade names and trademarks have value to the extent that their owner is relieved of the obligation to pay royalties for the benefits received from them. This method requires the Company to estimate the future revenue for the related brands, the appropriate royalty rate and the weighted average cost of capital.



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NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Foreign Currency Translation and Foreign Currency Transactions

Adjustments resulting from translating foreign functional currency financial statements into U.S. dollars are included in the foreign currency translation adjustment, a component of accumulated other comprehensive income in shareholders' equity.

The Company's global subsidiaries have various assets and liabilities, primarily receivables and payables, that are denominated in currencies other than their functional currency. These balance sheet items are subject to remeasurement, the impact of which is recorded in other (income) expense, net, within our consolidated statement of income.

Accounting for Derivatives and Hedging Activities

The Company uses derivative financial instruments to limit exposure to changes in foreign currency exchange rates and interest rates. All derivatives are recorded at fair value on the balance sheet and changes in the fair value of derivative financial instruments are either recognized in other comprehensive income (a component of shareholders' equity), debt or net income depending on the nature of the underlying exposure, whether the derivative is formally designated as a hedge, and, if designated, the extent to which the hedge is effective. The Company classifies the cash flows at settlement from derivatives in the same category as the cash flows from the related hedged items. For undesignated hedges and designated cash flow hedges, this is within the cash provided by operations component of the consolidated statement of cash flows. For designated net investment hedges, this is generally within the cash used by investing activities component of the cash flow statement. As our fair value hedges are receive–fixed, pay–variable interest rate swaps, the cash flows associated with these derivative instruments are periodic interest payments while the swaps are outstanding, which are reflected in net income within the cash provided by operations component of the cash flow statement.

See Note 18 — Risk Management and Derivatives for more information on the Company's risk management program and derivatives.

Stock–Based Compensation

The Company estimates the fair value of options granted under the NIKE, Inc. 1990 Stock Incentive Plan (the "1990 Plan") and employees' purchase rights under the Employee Stock Purchase Plans ("ESPPs") using the Black–Scholes option pricing model. The Company recognizes this fair value, net of estimated forfeitures, as selling and administrative expense in the consolidated statements of income over the vesting period using the straight–line method.

See Note 11 — Common Stock and Stock–Based Compensation for more information on the Company's stock programs.

Income Taxes

The Company accounts for income taxes using the asset and liability method. This approach requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of temporary differences between the carrying amounts and the tax basis of assets and liabilities. United States income taxes are provided currently on financial statement earnings of non–U.S. subsidiaries that are expected to be repatriated. The Company determines annually the amount of undistributed non–U.S. earnings to invest indefinitely in its non–U.S. operations. The Company recognizes interest and penalties related to income tax matters in income tax expense.

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NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

See Note 9 — Income Taxes for further discussion.

Earnings Per Share

Basic earnings per common share is calculated by dividing net income by the weighted average number of common shares outstanding during the year. Diluted earnings per common share is calculated by adjusting weighted average outstanding shares, assuming conversion of all potentially dilutive stock options and awards.

See Note 12 — Earnings Per Share for further discussion.

Management Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates, including estimates relating to assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from these estimates.

Reclassifications

Certain prior year amounts have been reclassified to conform to fiscal year 2010 presentation, including a reclassification to investing activities for the settlement of net investment hedges in the consolidated statement of cash flows for the year ended May 31, 2008. These reclassifications had no impact on previously reported results of operations or shareholders' equity and do not affect previously reported cash flows from operations, financing activities or net change in cash and equivalents.

Recently Adopted Accounting Standards:

In January 2010, the Financial Accounting Standards Board ("FASB") issued guidance to amend the disclosure requirements related to recurring and nonrecurring fair value measurements. The guidance requires additional disclosures about the different classes of assets and liabilities measured at fair value, the valuation techniques and inputs used, the activity in Level 3 fair value measurements, and the transfers between Levels 1, 2, and 3 of the fair value measurement hierarchy. This guidance became effective for the Company beginning March 1, 2010, except for disclosures relating to purchases, sales, issuances and settlements of Level 3 assets and liabilities, which will be effective for the Company beginning June 1, 2011. As this guidance only requires expanded disclosures, the adoption did not and will not impact the Company's consolidated financial position or results of operations. See Note 6 — Fair Value Measurements for disclosure required under this guidance.

In February 2010, the FASB issued amended guidance on subsequent events. Under this amended guidance, SEC filers are no longer required to disclose the date through which subsequent events have been evaluated in originally issued and revised financial statements. This guidance was effective immediately and the Company adopted these new requirements since the third quarter of fiscal 2010.

In June 2009, the FASB established the FASB Accounting Standards Codification (the "Codification") as the single source of authoritative U.S. GAAP for all non–governmental entities. The Codification, which launched July 1, 2009, changes the referencing and organization of accounting guidance. The Codification became effective for the Company beginning September 1, 2009. The issuance of the FASB Codification did not change GAAP and therefore the adoption has only affected how specific references to GAAP literature are disclosed in the notes to the Company's consolidated financial statements.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

In April 2009, the FASB updated guidance related to fair value measurements to clarify the guidance related to measuring fair value in inactive markets, to modify the recognition and measurement of other–than–temporary impairments of debt securities, and to require public companies to disclose the fair values of financial instruments in interim periods. This updated guidance became effective for the Company beginning June 1, 2009. The adoption of this guidance did not have an impact on the Company's consolidated financial position or results of operations. See Note 6 — Fair Value Measurements for disclosure required under the updated guidance.

In June 2008, the FASB issued new accounting guidance applicable when determining whether instruments granted in share–based payment transactions are participating securities. This guidance clarifies that share–based payment awards that entitle their holders to receive non–forfeitable dividends before vesting should be considered participating securities and included in the computation of earnings per share pursuant to the two–class method. This guidance became effective for the Company beginning June 1, 2009. The adoption of this guidance did not have a material impact on the Company's consolidated financial position or results of operations.

In April 2008, the FASB issued amended guidance regarding the determination of the useful life of intangible assets. This guidance amends the factors that should be considered in developing renewal or extension assumptions used to determine the useful life of a recognized intangible asset. The intent of the position is to improve the consistency between the useful life of a recognized intangible asset and the period of expected cash flows used to measure the fair value of the asset. This guidance became effective for the Company beginning June 1, 2009. The adoption of this guidance did not have a material impact on the Company's consolidated financial position or results of operations.

In December 2007, the FASB issued amended guidance regarding business combinations, establishing principles and requirements for how an acquirer recognizes and measures identifiable assets acquired, liabilities assumed, any resulting goodwill, and any non–controlling interest in an acquiree in its financial statements. This guidance also provides for disclosures to enable users of the financial statements to evaluate the nature and financial effects of a business combination. This amended guidance became effective for the Company beginning June 1, 2009. The adoption of this amended guidance did not have an impact on the Company's consolidated financial statements, but could impact the accounting for future business combinations.

In December 2007, the FASB issued new guidance regarding the accounting and reporting for non–controlling interests in subsidiaries. This guidance clarifies that non–controlling interests in subsidiaries should be accounted for as a component of equity separate from the parent's equity. This guidance became effective for the Company beginning June 1, 2009. The adoption of this guidance did not have an impact on the Company's consolidated financial position or results of operations.

Recently Issued Accounting Standards:

In October 2009, the FASB issued new standards that revised the guidance for revenue recognition with multiple deliverables. These new standards impact the determination of when the individual deliverables included in a multiple–element arrangement may be treated as separate units of accounting. Additionally, these new standards modify the manner in which the transaction consideration is allocated across the separately identified deliverables by no longer permitting the residual method of allocating arrangement consideration. These new standards are effective for the Company beginning June 1, 2011. The Company does not expect the adoption will have a material impact on its consolidated financial positions or results of operations.

In June 2009, the FASB issued a new accounting standard that revised the guidance for the consolidation of variable interest entities ("VIE"). This new guidance requires a qualitative approach to identifying a controlling financial interest in a VIE, and requires an ongoing assessment of whether an entity is a VIE and whether an

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

interest in a VIE makes the holder the primary beneficiary of the VIE. This guidance is effective for the Company beginning June 1, 2010. The Company is currently evaluating the impact of the provisions of this new standard.

Note 2 — Inventories

Inventory balances of $2,040.8 million and $2,357.0 million at May 31, 2010 and 2009, respectively, were substantially all finished goods.

Note 3 — Property, Plant and Equipment

Property, plant and equipment included the following:

	As of May 31,	
	2010	2009
	(In millions)	
Land	$ 222.8	$ 221.6
Buildings	951.9	974.0
Machinery and equipment	2,217.5	2,094.3
Leasehold improvements	820.6	802.0
Construction in process	177.0	163.8
	4,389.8	4,255.7
Less accumulated depreciation	2,457.9	2,298.0
	$ 1,931.9	$ 1,957.7

Capitalized interest was not material for the years ended May 31, 2010, 2009 and 2008.

Note 4 — Acquisition, Identifiable Intangible Assets, Goodwill and Umbro Impairment

Acquisition

On March 3, 2008, the Company completed its acquisition of 100% of the outstanding shares of Umbro, a leading United Kingdom–based global soccer brand, for a purchase price of 290.5 million British Pounds Sterling in cash (approximately $576.4 million), inclusive of direct transaction costs. This acquisition is intended to strengthen the Company's market position in the United Kingdom and expand NIKE's global leadership in soccer, a key area of growth for the Company. This acquisition also provides positions in emerging soccer markets such as China, Russia and Brazil. The results of Umbro's operations have been included in the Company's consolidated financial statements since the date of acquisition as part of the Company's "Other" operating segment.

The acquisition of Umbro was accounted for as a purchase business combination. The purchase price was allocated to tangible and identifiable intangible assets acquired and liabilities assumed based on their respective estimated fair values on the date of acquisition, with the remaining purchase price recorded as goodwill.

Based on our preliminary purchase price allocation at May 31, 2008, identifiable intangible assets and goodwill relating to the purchase approximated $419.5 million and $319.2 million, respectively. Goodwill recognized in this transaction is deductible for tax purposes. Identifiable intangible assets include $378.4 million for trademarks that have an indefinite life, and $41.1 million for other intangible assets consisting of Umbro's

sourcing network, established customer relationships, and the United Soccer League Franchise. These intangible assets are amortized on a straight–line basis over estimated lives of 12 to 20 years.

During fiscal 2009, the Company finalized the purchase–price accounting for Umbro and made revisions to preliminary estimates, including valuations of tangible and intangible assets and certain contingencies, as further evaluations were completed and information was received from third parties subsequent to the acquisition date. These revisions to preliminary estimates resulted in a $12.4 million decrease in the value of identified intangible assets, primarily Umbro's sourcing network, and an $11.2 million increase in non–current liabilities, primarily related to liabilities assumed for certain contingencies and adjustments made to deferred taxes related to the fair value of assets acquired. These changes in assets acquired and liabilities assumed affected the amount of goodwill recorded.

The following table summarizes the allocation of the purchase price, including transaction costs of the acquisition, to the assets acquired and liabilities assumed at the date of acquisition based on their estimated fair values, including final purchase accounting adjustments (in millions):

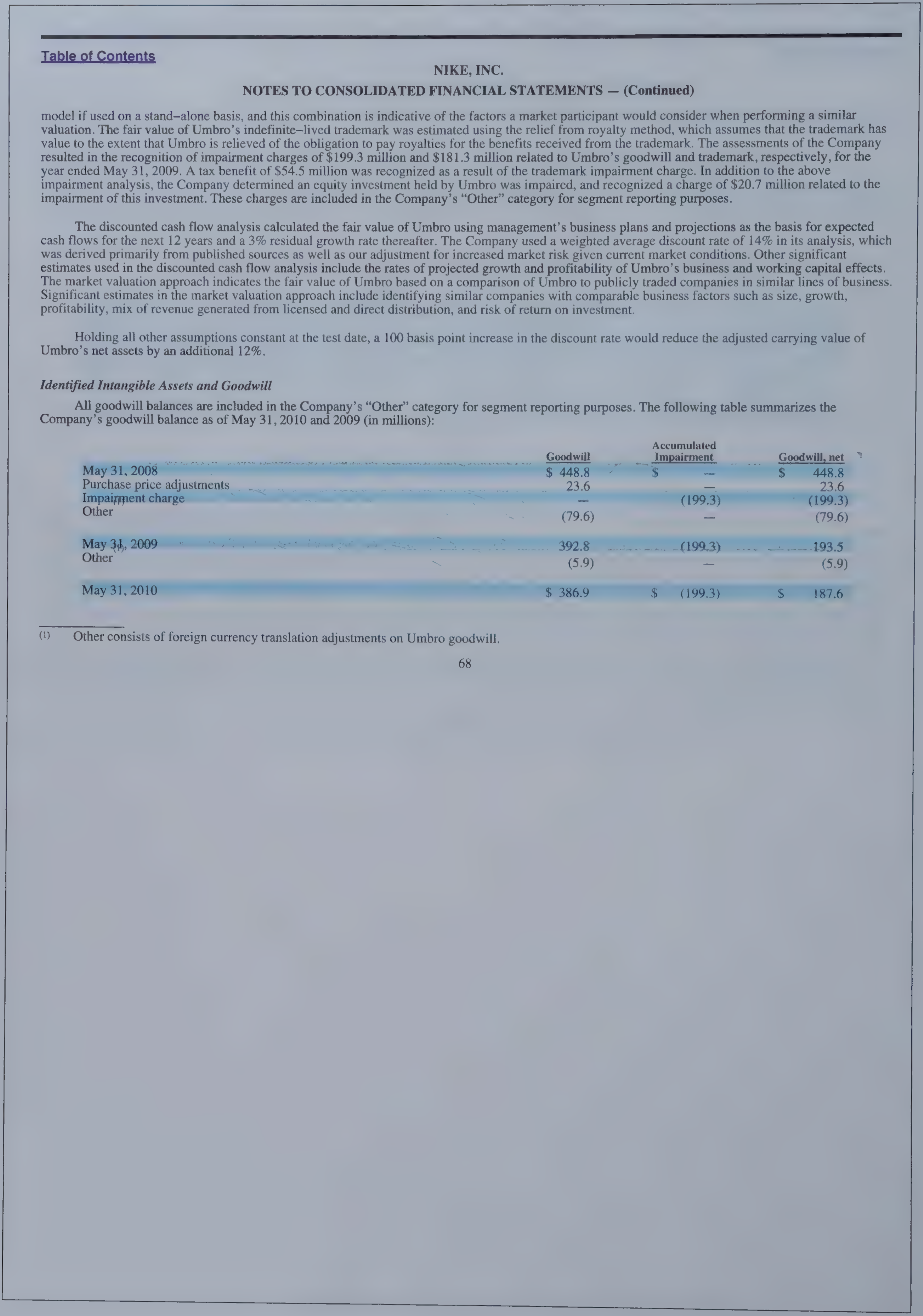
	May 31, 2008 Preliminary	Adjustments	May 31, 2009 Final
Current assets	$ 87.2	$ —	$ 87.2
Non–current assets	90.2	—	90.2
Identified intangible assets	419.5	(12.4)	407.1
Goodwill	319.2	23.6	342.8
Current liabilities	(60.3)	—	(60.3)
Non–current liabilities	(279.4)	(11.2)	(290.6)
Net assets acquired	$ 576.4	$ —	$ 576.4

The pro forma effect of the acquisition on the combined results of operations for fiscal 2008 was not material.

Umbro Impairment in Fiscal 2009

The Company performs annual impairment tests on goodwill and intangible assets with indefinite lives in the fourth quarter of each fiscal year, or when events occur or circumstances change that would, more likely than not, reduce the fair value of a reporting unit or intangible assets with an indefinite life below its carrying value. As a result of a significant decline in global consumer demand and continued weakness in the macroeconomic environment, as well as decisions by Company management to adjust planned investment in the Umbro brand, the Company concluded sufficient indicators of impairment existed to require the performance of an interim assessment of Umbro's goodwill and indefinite lived intangible assets as of February 1, 2009. Accordingly, the Company performed the first step of the goodwill impairment assessment for Umbro by comparing the estimated fair value of Umbro to its carrying amount, and determined there was a potential impairment of goodwill as the carrying amount exceeded the estimated fair value. Therefore, the Company performed the second step of the assessment which compared the implied fair value of Umbro's goodwill to the book value of goodwill. The implied fair value of goodwill is determined by allocating the estimated fair value of Umbro to all of its assets and liabilities, including both recognized and unrecognized intangibles, in the same manner as goodwill was determined in the original business combination.

The Company measured the fair value of Umbro by using an equal weighting of the fair value implied by a discounted cash flow analysis and by comparisons with the market values of similar publicly traded companies. The Company believes the blended use of both models compensates for the inherent risk associated with either



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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

model if used on a stand–alone basis, and this combination is indicative of the factors a market participant would consider when performing a similar valuation. The fair value of Umbro's indefinite–lived trademark was estimated using the relief from royalty method, which assumes that the trademark has value to the extent that Umbro is relieved of the obligation to pay royalties for the benefits received from the trademark. The assessments of the Company resulted in the recognition of impairment charges of $199.3 million and $181.3 million related to Umbro's goodwill and trademark, respectively, for the year ended May 31, 2009. A tax benefit of $54.5 million was recognized as a result of the trademark impairment charge. In addition to the above impairment analysis, the Company determined an equity investment held by Umbro was impaired, and recognized a charge of $20.7 million related to the impairment of this investment. These charges are included in the Company's "Other" category for segment reporting purposes.

The discounted cash flow analysis calculated the fair value of Umbro using management's business plans and projections as the basis for expected cash flows for the next 12 years and a 3% residual growth rate thereafter. The Company used a weighted average discount rate of 14% in its analysis, which was derived primarily from published sources as well as our adjustment for increased market risk given current market conditions. Other significant estimates used in the discounted cash flow analysis include the rates of projected growth and profitability of Umbro's business and working capital effects. The market valuation approach indicates the fair value of Umbro based on a comparison of Umbro to publicly traded companies in similar lines of business. Significant estimates in the market valuation approach include identifying similar companies with comparable business factors such as size, growth, profitability, mix of revenue generated from licensed and direct distribution, and risk of return on investment.

Holding all other assumptions constant at the test date, a 100 basis point increase in the discount rate would reduce the adjusted carrying value of Umbro's net assets by an additional 12%.

Identified Intangible Assets and Goodwill

All goodwill balances are included in the Company's "Other" category for segment reporting purposes. The following table summarizes the Company's goodwill balance as of May 31, 2010 and 2009 (in millions):

	Goodwill	Accumulated Impairment	Goodwill, net
May 31, 2008	$ 448.8	$ —	$ 448.8
Purchase price adjustments	23.6	—	23.6
Impairment charge	—	(199.3)	(199.3)
Other[1]	(79.6)	—	(79.6)
May 31, 2009	392.8	(199.3)	193.5
Other[1]	(5.9)	—	(5.9)
May 31, 2010	$ 386.9	$ (199.3)	$ 187.6

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(1) Other consists of foreign currency translation adjustments on Umbro goodwill.

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NIKE, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table summarizes the Company's identifiable intangible asset balances as of May 31, 2010 and 2009.

	May 31, 2010			May 31, 2009		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
	(In millions)					
Amortized intangible assets:						
Patents	$ 68.5	$ (20.8)	$ 47.7	$ 56.6	$ (17.2)	$ 39.4
Trademarks	40.2	(17.8)	22.4	37.5	(10.9)	26.6
Other	32.7	(18.8)	13.9	40.0	(19.6)	20.4
Total	$ 141.4	$ (57.4)	$ 84.0	$ 134.1	$ (47.7)	$ 86.4
Unamortized intangible assets — Trademarks			$ 383.0			$ 381.0
Identifiable intangible assets, net			$ 467.0			$ 467.4

The effect of foreign exchange fluctuations for the year ended May 31, 2010 increased unamortized intangible assets by approximately $2 million.

Amortization expense, which is included in selling and administrative expense, was $13.5 million, $11.9 million and $9.2 million for the years ended May 31, 2010, 2009 and 2008, respectively. The estimated amortization expense for intangible assets subject to amortization for each of the years ending May 31, 2011 through May 31, 2015 are as follows: 2011: $13.4 million; 2012: $12.7 million; 2013: $10.8 million; 2014: $8.7 million; 2015: $5.1 million.

Note 5 — Accrued Liabilities

Accrued liabilities included the following:

	May 31,	
	2010	2009
	(In millions)	
Compensation and benefits, excluding taxes	$ 598.8	$ 491.9
Endorser compensation	266.9	237.1
Fair value of derivatives	163.6	68.9
Taxes other than income taxes	157.9	161.9
Dividends payable	130.7	121.4
Advertising and marketing	124.9	97.6
Import and logistics costs(1)	80.0	59.4
Restructuring charges(2)	8.2	149.6
Other	373.4	396.1
	$ 1,904.4	$ 1,783.9

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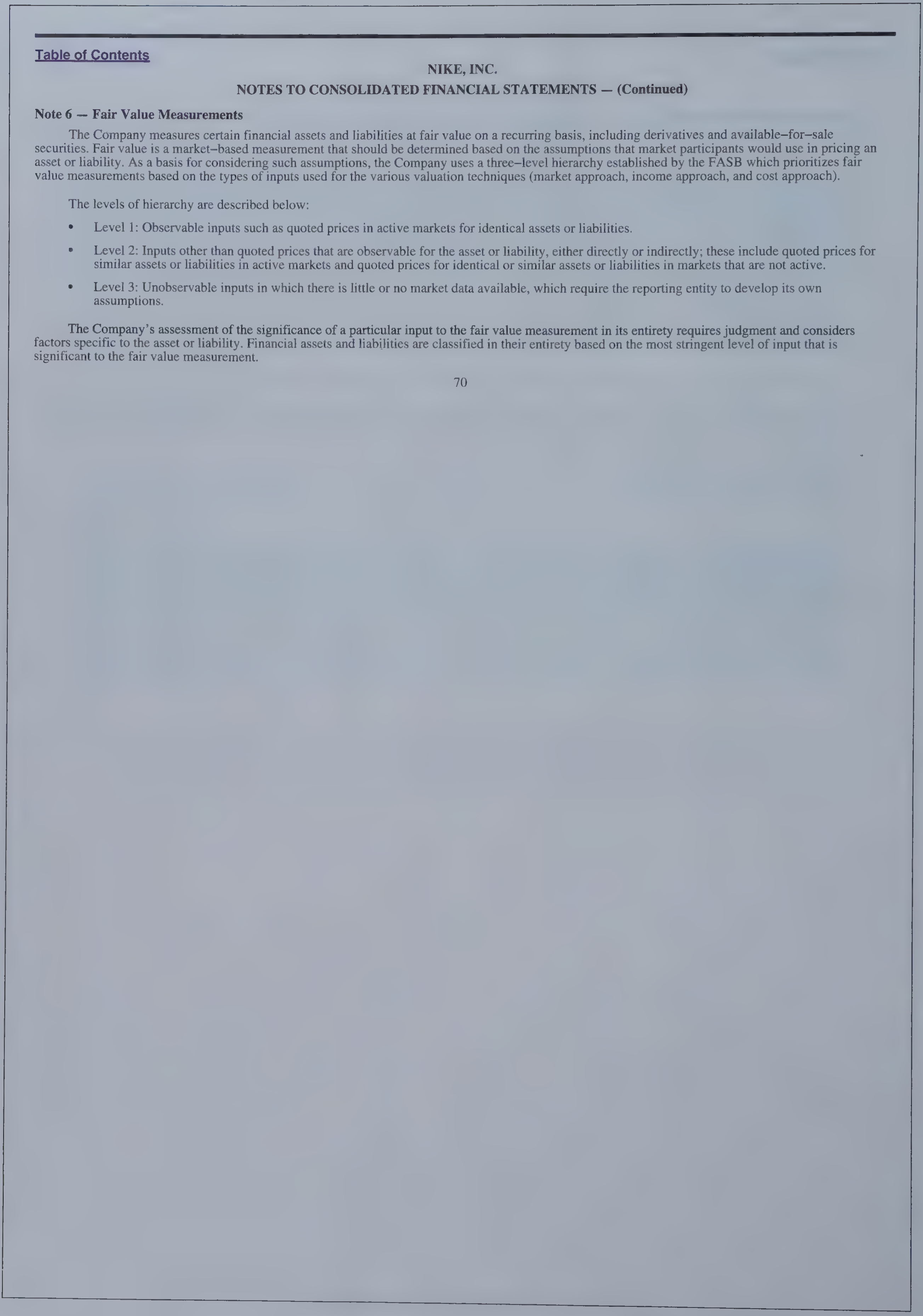
(1) Accrued restructuring charges primarily consist of severance costs relating to the Company's restructuring activities that took place during the year ended May 31, 2009. See Note 16 — Restructuring Charges for more information.

(2) Other consists of various accrued expenses and no individual item accounted for more than 5% of the balance at May 31, 2010 and 2009.



NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Note 6 — Fair Value Measurements

The Company measures certain financial assets and liabilities at fair value on a recurring basis, including derivatives and available–for–sale securities. Fair value is a market–based measurement that should be determined based on the assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the Company uses a three–level hierarchy established by the FASB which prioritizes fair value measurements based on the types of inputs used for the various valuation techniques (market approach, income approach, and cost approach).

The levels of hierarchy are described below:

- Level 1: Observable inputs such as quoted prices in active markets for identical assets or liabilities.
- Level 2: Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly; these include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.
- Level 3: Unobservable inputs in which there is little or no market data available, which require the reporting entity to develop its own assumptions.

The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment and considers factors specific to the asset or liability. Financial assets and liabilities are classified in their entirety based on the most stringent level of input that is significant to the fair value measurement.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table presents information about the Company's financial assets and liabilities measured at fair value on a recurring basis as of May 31, 2010 and 2009 and indicates the fair value hierarchy of the valuation techniques utilized by the Company to determine such fair value.

	May 31, 2010				
	Fair Value Measurements Using			Assets / Liabilities at Fair Value	Balance Sheet Classification
	Level 1	Level 2	Level 3		
	(In millions)				
Assets					
Derivatives:					
Foreign exchange forwards and options	$ —	$ 420.2	$ —	$ 420.2	Other current assets and other long–term assets
Interest rate swap contracts	—	14.6		14.6	Other current assets and other long–term assets
Total derivatives	—	434.8	—	434.8	
Available–for–sale securities:					
U.S. Treasury securities	1,231.7	—	—	1,231.7	Cash and equivalents
Commercial paper and bonds	—	461.9	—	461.9	Cash and equivalents
Money market funds	—	684.5	—	684.5	Cash and equivalents
U.S. Treasury securities	1,084.0	—	—	1,084.0	Short–term investments
U.S. Agency securities	—	298.5	—	298.5	Short–term investments
Commercial paper and bonds	—	684.3	—	684.3	Short–term investments
Total available–for–sale securities	2,315.7	2,129.2	—	4,444.9	
Total Assets	$ 2,315.7	$ 2,564.0	$ —	$ 4,879.7	
Liabilities					
Derivatives:					
Foreign exchange forwards and options	$ —	$ 165.1	$ —	$ 165.1	Accrued liabilities and other long–term liabilities
Total Liabilities	$ —	$ 165.1	$ —	$ 165.1	

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

	May 31, 2009				
	Fair Value Measurements Using			Assets / Liabilities at Fair Value	Balance Sheet Classification
	Level 1	Level 2	Level 3		
	(In millions)				
Assets					
Derivatives:					
Foreign exchange forwards and options	$ —	$ 364.9	$ —	$ 364.9	Other current assets and other long–term assets
Interest rate swap contracts	—	13.8	—	13.8	Other current assets and other long–term assets
Total derivatives	—	378.7	—	378.7	
Available–for–sale securities:					
U.S. Treasury securities	240.0	—	—	240.0	Cash and equivalents
Commercial paper and bonds	—	235.3	—	235.3	Cash and equivalents
Money market funds	—	1,079.5	—	1,079.5	Cash and equivalents
U.S. Treasury securities	467.9	—	—	467.9	Short–term investments
U.S. Agency securities	—	304.9	—	304.9	Short–term investments
Commercial paper and bonds	—	391.2	—	391.2	Short–term investments
Total available–for–sale securities	707.9	2,010.9	—	2,718.8	
Total Assets	$ 707.9	$ 2,389.6	$ —	$ 3,097.5	
Liabilities					
Derivatives:					
Foreign exchange forwards and options	$ —	$ 68.9	$ —	$ 68.9	Accrued liabilities and other long–term liabilities
Total Liabilities	$ —	$ 68.9	$ —	$ 68.9	

Derivative financial instruments include foreign currency forwards, option contracts and interest rate swaps. The fair value of these derivatives contracts is determined using observable market inputs such as the forward pricing curve, currency volatilities, currency correlations and interest rates, and considers nonperformance risk of the Company and that of its counterparties. Adjustments relating to these risks were not material for the years ended May 31, 2010 and 2009.

Available–for–sale securities are primarily comprised of investments in U.S. Treasury and agency securities, commercial paper, bonds and money market funds. These securities are valued using market prices on both active markets (level 1) and less active markets (level 2). Level 1 instrument valuations are obtained from real–time quotes for transactions in active exchange markets involving identical assets. Level 2 instrument valuations are obtained from readily–available pricing sources for comparable instruments.

As of May 31, 2010 and 2009, the Company had no material Level 3 measurements and no assets or liabilities measured at fair value on a non–recurring basis.

Short–term Investments

As of May 31, 2010 and 2009, short–term investments consisted of available–for–sale securities. As of May 31, 2010, the Company held $1,900.4 million of available–for–sale securities with maturity dates within one year and $166.4 million with maturity dates over one year and less than five years within short–term investments. As of May 31, 2009, the Company held $1,005.0 million of available–for–sale securities with maturity dates within one year and $159.0 million with maturity dates over one year and less than five years within short–term investments.

Short–term investments classified as available–for–sale consist of the following at fair value:

	As of May 31,	
	2010	2009
	(In millions)	
Available–for–sale investments:		
U.S. treasury and agencies	$ 1,382.5	$ 772.8
Commercial paper and bonds	684.3	391.2
Total available–for–sale investments	$ 2,066.8	$ 1,164.0

Included in interest expense (income), net for the years ended May 31, 2010, 2009 and 2008 was interest income of $30.1 million, $49.7 million, and $115.8 million, respectively, related to cash and equivalents and short–term investments.

For fair value information regarding notes payable and long–term debt, refer to Note 7 — Short–Term Borrowings and Credit Lines and Note 8 — Long–Term Debt.

Note 7 — Short–Term Borrowings and Credit Lines

Notes payable to banks and interest–bearing accounts payable to Sojitz Corporation of America ("Sojitz America") as of May 31, 2010 and 2009, are summarized below:

	May 31,			
	2010		2009	
	Borrowings	Interest Rate	Borrowings	Interest Rate
	(In millions)			
Notes payable:				
Commercial paper	$ —	—	$ 100.0	0.40%
U.S. operations	18.0	—(1)	31.2	1.81%(1)
Non–U.S. operations	120.6	6.35%(1)	211.7	4.15%(1)
	$ 138.6		$ 342.9	
Sojitz America	$ 88.2	1.07%	$ 78.5	1.57%

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(1) Weighted average interest rate includes non–interest bearing overdrafts.

The carrying amounts reflected in the consolidated balance sheet for notes payable approximate fair value.

The Company purchases through Sojitz America certain athletic footwear, apparel and equipment it acquires from non–U.S. suppliers. These purchases are for the Company's operations outside of the United States, Europe and Japan. Accounts payable to Sojitz America are generally due up to 60 days after shipment of goods from the foreign port. The interest rate on such accounts payable is the 60–day London Interbank Offered Rate ("LIBOR") as of the beginning of the month of the invoice date, plus 0.75%.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

As of May 31, 2010, the Company had no amounts outstanding under its commercial paper program. As of May 31, 2009, the Company had $100.0 million outstanding at a weighted average interest rate of 0.40%.

In December 2006, the Company entered into a $1 billion revolving credit facility with a group of banks. The facility matures in December 2012. Based on the Company's current long–term senior unsecured debt ratings of A+ and A1 from Standard and Poor's Corporation and Moody's Investor Services, respectively, the interest rate charged on any outstanding borrowings would be the prevailing LIBOR plus 0.15%. The facility fee is 0.05% of the total commitment. Under this agreement, the Company must maintain, among other things, certain minimum specified financial ratios with which the Company was in compliance at May 31, 2010. No amounts were outstanding under this facility as of May 31, 2010 and 2009.

Note 8 — Long–Term Debt

Long–term debt, net of unamortized premiums and discounts and swap fair value adjustments, is comprised of the following:

	May 31,	
	2010	2009
	(In millions)	
5.375% Corporate bond, payable July 8, 2009	$ —	$ 25.1
5.66% Corporate bond, payable July 23, 2012	27.0	27.4
5.4% Corporate bond, payable August 7, 2012	16.1	16.2
4.7% Corporate bond, payable October 1, 2013	50.0	50.0
5.15% Corporate bond, payable October 15, 2015	112.4	111.1
4.3% Japanese Yen note, payable June 26, 2011	115.7	108.5
1.52125% Japanese Yen note, payable February 14, 2012	55.1	51.7
2.6% Japanese Yen note, maturing August 20, 2001 through November 20, 2020	53.1	54.7
2.0% Japanese Yen note, maturing August 20, 2001 through November 20, 2020	23.8	24.5
Total	453.2	469.2
Less current maturities	7.4	32.0
	$445.8	$437.2

The scheduled maturity of long–term debt in each of the years ending May 31, 2011 through 2015 are $7.4 million, $178.1 million, $47.4 million, $57.4 million and $7.4 million, at face value, respectively.

The Company's long–term debt is recorded at adjusted cost, net of amortized premiums and discounts and interest rate swap fair value adjustments. The fair value of long–term debt is estimated based upon quoted prices for similar instruments. The fair value of the Company's long–term debt, including the current portion, was approximately $453 million at May 31, 2010 and $456 million at May 31, 2009.

In fiscal years 2003 and 2004, the Company issued a total of $240 million in medium–term notes of which $190 million, at face value, were outstanding at May 31, 2010. The outstanding notes have coupon rates that range from 4.70% to 5.66% and maturity dates ranging from July 2012 to October 2015. For each of these notes, except the $50 million note maturing in October 2013, the Company has entered into interest rate swap agreements whereby the Company receives fixed interest payments at the same rate as the notes and pays variable interest payments based on the six–month LIBOR plus a spread. Each swap has the same notional amount and maturity date as the corresponding note. At May 31, 2010, the interest rates payable on these swap agreements ranged from approximately 0.3% to 1.1%.

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NIKE, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

In June 1996, one of the Company's Japanese subsidiaries, NIKE Logistics YK, borrowed ¥10.5 billion (approximately $115.7 million as of May 31, 2010) in a private placement with a maturity of June 26, 2011. Interest is paid semi–annually. The agreement provides for early retirement of the borrowing.

In July 1999, NIKE Logistics YK assumed a total of ¥13.0 billion in loans as part of its agreement to purchase a distribution center in Japan, which serves as collateral for the loans. These loans mature in equal quarterly installments during the period August 20, 2001 through November 20, 2020. Interest is also paid quarterly. As of May 31, 2010, ¥7.0 billion (approximately $76.9 million) in loans remain outstanding.

In February 2007, NIKE Logistics YK entered into a ¥5.0 billion (approximately $55.1 million as of May 31, 2010) term loan that replaced certain intercompany borrowings and matures on February 14, 2012. The interest rate on the loan is approximately 1.5% and interest is paid semi–annually.

Note 9 — Income Taxes

Income before income taxes is as follows:

	Year Ended May 31,		
	2010	2009 (In millions)	2008
Income before income taxes:			
United States	$ 698.6	$ 845.7	$ 713.0
Foreign	1,818.3	1,110.8	1,789.9
	$ 2,516.9	$ 1,956.5	$ 2,502.9

The provision for income taxes is as follows:

	Year Ended May 31,		
	2010	2009 (In millions)	2008
Current:			
United States			
Federal	$200.2	$ 410.1	$ 469.9
State	50.0	46.1	58.4
Foreign	348.5	307.7	391.8
	598.7	763.9	920.1
Deferred:			
United States			
Federal	17.7	(251.4)	(273.0)
State	(1.1)	(7.9)	(5.0)
Foreign	(5.1)	(34.8)	(22.6)
	11.5	(294.1)	(300.6)
	$610.2	$ 469.8	$ 619.5

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

A reconciliation from the U.S. statutory federal income tax rate to the effective income tax rate follows:

	Year Ended May 31,		
	2010	2009	2008
Federal income tax rate	35.0%	35.0%	35.0%
State taxes, net of federal benefit	1.3%	1.2%	1.4%
Foreign earnings	−13.6%	−14.9%	−12.9%
Other, net	1.5%	2.7%	1.3%
Effective income tax rate	24.2%	24.0%	24.8%

The effective tax rate for the year ended May 31, 2010 of 24.2% increased from the fiscal 2009 effective rate of 24.0%. The effective tax rate for the year ended May 31, 2009 was favorably impacted by a tax benefit associated with the impairment of goodwill, intangible, and other assets of Umbro (See Note 4 — Acquisition, Identifiable Intangible Assets, Goodwill and Umbro Impairment), and the retroactive reinstatement of the research and development tax credit. The Tax Extenders and Alternative Minimum Tax Relief Act of 2008, which was signed into law during the second quarter of fiscal 2009, reinstated the U.S. federal research and development tax credit retroactive to January 1, 2008. Also reflected in the effective tax rate for the years ended May 31, 2010, 2009 and 2008 is a reduction in our on–going effective tax rate resulting from our operations outside of the United States, as our tax rates on those operations are generally lower than the U.S. statutory rate.

Deferred tax assets and (liabilities) are comprised of the following:

	May 31,	
	2010	2009
	(In millions)	
Deferred tax assets:		
Allowance for doubtful accounts	$ 16.7	$ 17.9
Inventories	47.3	52.8
Sales return reserves	52.0	52.8
Deferred compensation	143.7	127.3
Stock–based compensation	145.0	127.3
Reserves and accrued liabilities	85.8	66.7
Foreign loss carry–forwards	26.2	31.9
Foreign tax credit carry–forwards	148.3	32.7
Hedges	0.4	1.1
Undistributed earnings of foreign subsidiaries	128.4	272.9
Other	37.0	46.2
Total deferred tax assets	830.8	829.6
Valuation allowance	(36.2)	(26.0)
Total deferred tax assets after valuation allowance	794.6	803.6
Deferred tax liabilities:		
Property, plant and equipment	(99.3)	(92.2)
Intangibles	(98.6)	(100.7)
Hedges	(71.5)	(86.6)
Other	(8.1)	(4.2)
Total deferred tax liability	(277.5)	(283.7)
Net deferred tax asset	$ 517.1	$ 519.9

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following is a reconciliation of the changes in the gross balance of unrecognized tax benefits:

	May 31, 2010	May 31, 2009	May 31, 2008
	(In millions)		
Unrecognized tax benefits, as of the beginning of the period	$ 273.9	$251.1	$122.5
Gross increases related to prior period tax positions	86.7	53.2	71.6
Gross decreases related to prior period tax positions	(121.6)	(61.7)	(23.1)
Gross increases related to current period tax positions	52.5	71.5	87.7
Settlements	(3.3)	(29.3)	(13.4)
Lapse of statute of limitations	(9.3)	(4.1)	(0.7)
Changes due to currency translation	3.2	(6.8)	6.5
Unrecognized tax benefits, as of the end of the period	$ 282.1	$273.9	$251.1

As of May 31, 2010, the total gross unrecognized tax benefits, excluding related interest and penalties, were $282.1 million, $158.4 million of which would affect the Company's effective tax rate if recognized in future periods. Total gross unrecognized tax benefits, excluding interest and penalties, as of May 31, 2009 was $273.9 million, $110.6 million of which would affect the Company's effective tax rate if recognized in future periods.

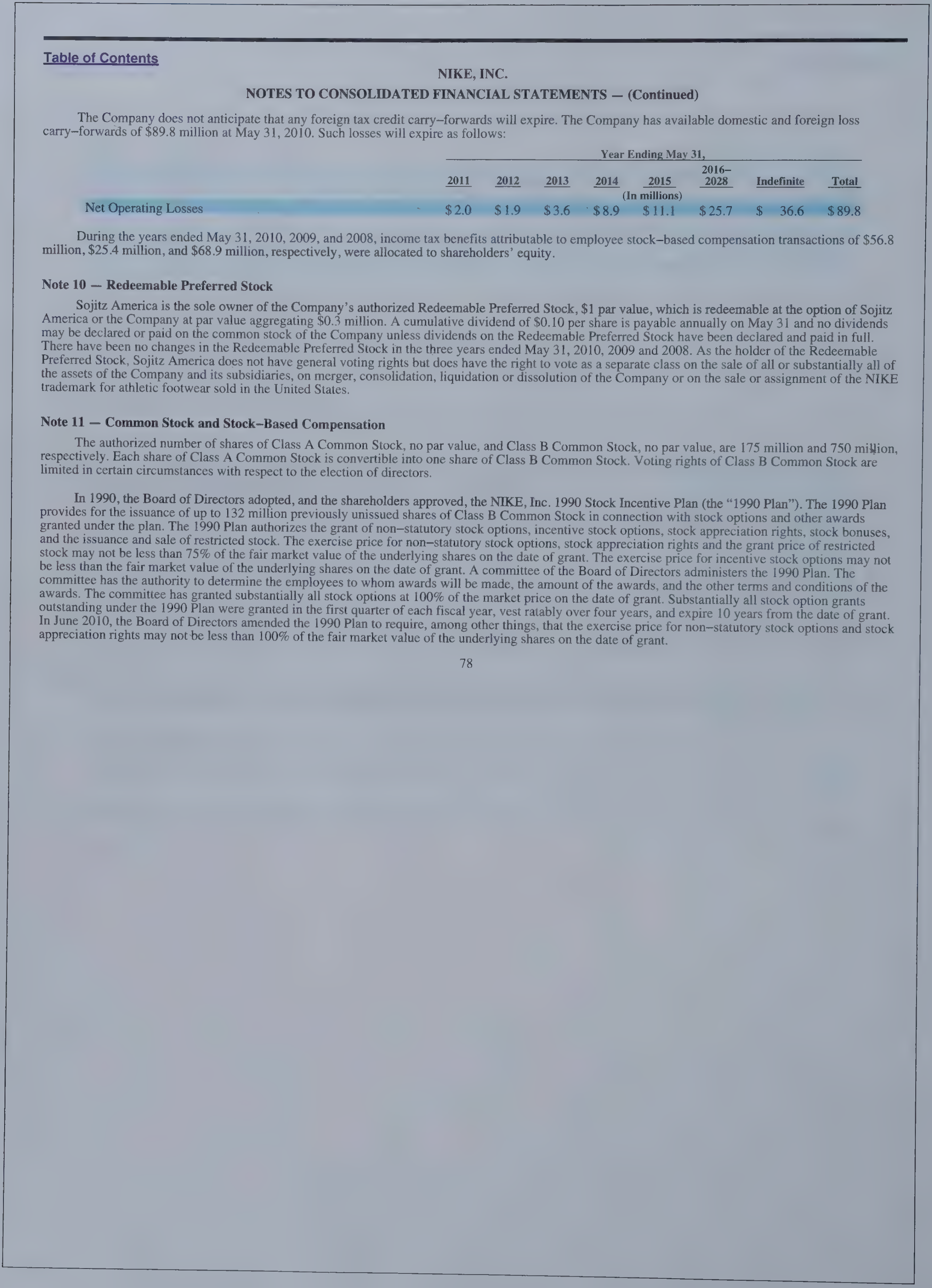
The Company recognizes interest and penalties related to income tax matters in income tax expense. The liability for payment of interest and penalties increased $6.0 million, $2.2 million and $41.2 million during the years ended May 31, 2010, 2009 and 2008, respectively. As of May 31, 2010 and 2009, accrued interest and penalties related to uncertain tax positions was $81.4 million and $75.4 million, respectively (excluding federal benefit).

The Company is subject to taxation primarily in the U.S., China and the Netherlands as well as various state and other foreign jurisdictions. The Company has concluded substantially all U.S. federal income tax matters through fiscal year 2006. The Company is currently under audit by the Internal Revenue Service for the 2007, 2008, 2009 and 2010 tax years. The Company's major foreign jurisdictions, China and the Netherlands, have concluded substantially all income tax matters through calendar 1999 and fiscal 2003, respectively. It is reasonably possible that the Internal Revenue Service audits for the 2007, 2008 and 2009 tax years will be completed during the next 12 months, which could result in a decrease in our balance of unrecognized tax benefits. An estimate of the range cannot be made at this time; however, we do not anticipate that total gross unrecognized tax benefits will change significantly as a result of full or partial settlement of audits within the next 12 months.

The Company has indefinitely reinvested approximately $3.6 billion of the cumulative undistributed earnings of certain foreign subsidiaries. Such earnings would be subject to U.S. taxation if repatriated to the U.S. Determination of the amount of unrecognized deferred tax liability associated with the permanently reinvested cumulative undistributed earnings is not practicable.

During the year ended May 31, 2009, a portion of the Company's foreign operations was granted a tax holiday that will phase out in 2019. The decrease in income tax expense for the year ended May 31, 2010 as a result of this arrangement was approximately $30.1 million ($0.06 per diluted share). The effect on income tax expense for the year ended May 31, 2009 was not material.

Deferred tax assets at May 31, 2010 and 2009 were reduced by a valuation allowance relating to tax benefits of certain subsidiaries with operating losses where it is more likely than not that the deferred tax assets will not be realized. The net change in the valuation allowance was an increase of $10.2 million for the year ended May 31, 2010 and a decrease of $14.7 million and $1.6 million for the years ended May 31, 2009 and 2008, respectively.



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NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The Company does not anticipate that any foreign tax credit carry–forwards will expire. The Company has available domestic and foreign loss carry–forwards of $89.8 million at May 31, 2010. Such losses will expire as follows:

	Year Ending May 31,							
	2011	2012	2013	2014	2015	2016–2028	Indefinite	Total
	(In millions)							
Net Operating Losses	$ 2.0	$ 1.9	$ 3.6	$ 8.9	$ 11.1	$ 25.7	$ 36.6	$ 89.8

During the years ended May 31, 2010, 2009, and 2008, income tax benefits attributable to employee stock–based compensation transactions of $56.8 million, $25.4 million, and $68.9 million, respectively, were allocated to shareholders' equity.

Note 10 — Redeemable Preferred Stock

Sojitz America is the sole owner of the Company's authorized Redeemable Preferred Stock, $1 par value, which is redeemable at the option of Sojitz America or the Company at par value aggregating $0.3 million. A cumulative dividend of $0.10 per share is payable annually on May 31 and no dividends may be declared or paid on the common stock of the Company unless dividends on the Redeemable Preferred Stock have been declared and paid in full. There have been no changes in the Redeemable Preferred Stock in the three years ended May 31, 2010, 2009 and 2008. As the holder of the Redeemable Preferred Stock, Sojitz America does not have general voting rights but does have the right to vote as a separate class on the sale of all or substantially all of the assets of the Company and its subsidiaries, on merger, consolidation, liquidation or dissolution of the Company or on the sale or assignment of the NIKE trademark for athletic footwear sold in the United States.

Note 11 — Common Stock and Stock–Based Compensation

The authorized number of shares of Class A Common Stock, no par value, and Class B Common Stock, no par value, are 175 million and 750 million, respectively. Each share of Class A Common Stock is convertible into one share of Class B Common Stock. Voting rights of Class B Common Stock are limited in certain circumstances with respect to the election of directors.

In 1990, the Board of Directors adopted, and the shareholders approved, the NIKE, Inc. 1990 Stock Incentive Plan (the "1990 Plan"). The 1990 Plan provides for the issuance of up to 132 million previously unissued shares of Class B Common Stock in connection with stock options and other awards granted under the plan. The 1990 Plan authorizes the grant of non–statutory stock options, incentive stock options, stock appreciation rights, stock bonuses, and the issuance and sale of restricted stock. The exercise price for non–statutory stock options, stock appreciation rights and the grant price of restricted stock may not be less than 75% of the fair market value of the underlying shares on the date of grant. The exercise price for incentive stock options may not be less than the fair market value of the underlying shares on the date of grant. A committee of the Board of Directors administers the 1990 Plan. The committee has the authority to determine the employees to whom awards will be made, the amount of the awards, and the other terms and conditions of the awards. The committee has granted substantially all stock options at 100% of the market price on the date of grant. Substantially all stock option grants outstanding under the 1990 Plan were granted in the first quarter of each fiscal year, vest ratably over four years, and expire 10 years from the date of grant. In June 2010, the Board of Directors amended the 1990 Plan to require, among other things, that the exercise price for non–statutory stock options and stock appreciation rights may not be less than 100% of the fair market value of the underlying shares on the date of grant.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table summarizes the Company's total stock–based compensation expense recognized in selling and administrative expense:

	Year Ended May 31,		
	2010	2009	2008
		(In millions)	
Stock options[(1)]	$134.6	$128.8	$127.0
ESPPs	13.7	14.4	7.2
Restricted stock	10.7	7.9	6.8
Subtotal	159.0	151.1	141.0
Stock options and restricted stock expense — restructuring[(2)]	—	19.5	—
Total stock–based compensation expense	$159.0	$170.6	$141.0

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(1) Accelerated stock option expense is recorded for employees eligible for accelerated stock option vesting upon retirement. Accelerated stock option expense reported during the years ended May 31, 2010, 2009 and 2008 was $74.4 million, $58.7 million and $40.7 million, respectively.

(2) In connection with the restructuring activities that took place during fiscal 2009, the Company recognized stock–based compensation expense relating to the modification of stock option agreements, allowing for an extended post–termination exercise period, and accelerated vesting of restricted stock as part of severance packages. See Note 16 — Restructuring Charges for further details.

As of May 31, 2010, the Company had $86.8 million of unrecognized compensation costs from stock options, net of estimated forfeitures, to be recognized as selling and administrative expense over a weighted average period of 2.2 years.

The weighted average fair value per share of the options granted during the years ended May 31, 2010, 2009 and 2008, as computed using the Black–Scholes pricing model, was $23.43, $17.13 and $13.87, respectively. The weighted average assumptions used to estimate these fair values are as follows:

	Year Ended May 31,		
	2010	2009	2008
Dividend yield	1.9%	1.5%	1.4%
Expected volatility	57.6%	32.5%	20.0%
Weighted average expected life (in years)	5.0	5.0	5.0
Risk–free interest rate	2.5%	3.4%	4.8%

The Company estimates the expected volatility based on the implied volatility in market traded options on the Company's common stock with a term greater than one year, along with other factors. The weighted average expected life of options is based on an analysis of historical and expected future exercise patterns. The interest rate is based on the U.S. Treasury (constant maturity) risk–free rate in effect at the date of grant for periods corresponding with the expected term of the options.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following summarizes the stock option transactions under the plan discussed above:

	Shares (In millions)	Weighted Average Option Price
Options outstanding May 31, 2007	39.7	$ 35.50
Exercised	(9.1)	33.45
Forfeited	(0.9)	44.44
Granted	6.9	58.50
Options outstanding May 31, 2008	36.6	$ 40.14
Exercised	(4.0)	35.70
Forfeited	(1.3)	51.19
Granted	7.5	58.17
Options outstanding May 31, 2009	38.8	$ 43.69
Exercised	(8.6)	37.64
Forfeited	(0.6)	51.92
Granted	6.4	52.79
Options outstanding May 31, 2010	36.0	$ 46.60
Options exercisable at May 31,		
2008	16.2	$ 32.35
2009	21.4	36.91
2010	20.4	41.16

The weighted average contractual life remaining for options outstanding and options exercisable at May 31, 2010 was 6.2 years and 4.8 years, respectively. The aggregate intrinsic value for options outstanding and exercisable at May 31, 2010 was $926.8 million and $636.0 million, respectively. The aggregate intrinsic value was the amount by which the market value of the underlying stock exceeded the exercise price of the options. The total intrinsic value of the options exercised during the years ended May 31, 2010, 2009 and 2008 was $239.3 million, $108.4 million and $259.4 million, respectively.

In addition to the 1990 Plan, the Company gives employees the right to purchase shares at a discount to the market price under employee stock purchase plans ("ESPPs"). Employees are eligible to participate through payroll deductions up to 10% of their compensation. At the end of each six–month offering period, shares are purchased by the participants at 85% of the lower of the fair market value at the beginning or the end of the offering period. Employees purchased 0.8 million shares, 1.0 million shares and 0.8 million shares during the years ended May 31, 2010, 2009 and 2008, respectively.

From time to time, the Company grants restricted stock and unrestricted stock to key employees under the 1990 Plan. The number of shares granted to employees during the years ended May 31, 2010, 2009 and 2008 were 499,000, 75,000 and 110,000 with weighted average values per share of $53.16, $56.97 and $59.50, respectively. Recipients of restricted shares are entitled to cash dividends and to vote their respective shares throughout the period of restriction. The value of all of the granted shares was established by the market price on the date of grant. During the years ended May 31, 2010, 2009 and 2008, the fair value of restricted shares vested was $8.0 million, $9.9 million and $9.0 million, respectively, determined as of the date of vesting.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Note 12 — Earnings Per Share

The following is a reconciliation from basic earnings per share to diluted earnings per share. Options to purchase an additional 0.2 million, 13.2 million and 6.6 million shares of common stock were outstanding at May 31, 2010, 2009 and 2008, respectively, but were not included in the computation of diluted earnings per share because the options were anti–dilutive.

	Year Ended May 31,		
	2010	2009	2008
	(In millions, except per share data)		
Determination of shares:			
Weighted average common shares outstanding	485.5	484.9	495.6
Assumed conversion of dilutive stock options and awards	8.4	5.8	8.5
Diluted weighted average common shares outstanding	493.9	490.7	504.1
Basic earnings per common share	$ 3.93	$ 3.07	$ 3.80
Diluted earnings per common share	$ 3.86	$ 3.03	$ 3.74

Note 13 — Benefit Plans

The Company has a profit sharing plan available to most U.S.–based employees. The terms of the plan call for annual contributions by the Company as determined by the Board of Directors. A subsidiary of the Company also has a profit sharing plan available to its U.S.–based employees. The terms of the plan call for annual contributions as determined by the subsidiary's executive management. Contributions of $34.9 million, $27.6 million and $37.3 million were made to the plans and are included in selling and administrative expense for the years ended May 31, 2010, 2009 and 2008, respectively. The Company has various 401(k) employee savings plans available to U.S.–based employees. The Company matches a portion of employee contributions with common stock or cash. Company contributions to the savings plans were $34.2 million, $37.6 million and $33.9 million for the years ended May 31, 2010, 2009 and 2008, respectively, and are included in selling and administrative expense.

The Company also has a Long–Term Incentive Plan ("LTIP") that was adopted by the Board of Directors and approved by shareholders in September 1997 and later amended in fiscal 2007. The Company recognized $24.1 million, $17.6 million and $35.9 million of selling and administrative expense related to cash awards under the LTIP during the years ended May 31, 2010, 2009 and 2008, respectively.

The Company has pension plans in various countries worldwide. The pension plans are only available to local employees and are generally government mandated. The liability related to the unfunded pension liabilities of the plans was $113.0 million and $82.8 million at May 31, 2010 and 2009, respectively.

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NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Note 14 — Accumulated Other Comprehensive Income

The components of accumulated other comprehensive income, net of tax, are as follows:

	May 31, 2010	May 31, 2009
	(In millions)	
Cumulative translation adjustment and other	$ (94.6)	$ 64.6
Net deferred gain on net investment hedge derivatives	107.3	62.5
Net deferred gain on cash flow hedge derivatives	202.1	240.4
	$214.8	$367.5

Note 15 — Commitments and Contingencies

The Company leases space for certain of its offices, warehouses and retail stores under leases expiring from 1 to 25 years after May 31, 2010. Rent expense was $416.1 million, $397.0 million and $344.2 million for the years ended May 31, 2010, 2009 and 2008, respectively. Amounts of minimum future annual rental commitments under non–cancelable operating leases in each of the five years ending May 31, 2011 through 2015 are $334.4 million, $264.0 million, $219.9 million, $177.2 million, $148.0 million, respectively, and $465.8 million in later years.

As of May 31, 2010 and 2009, the Company had letters of credit outstanding totaling $101.1 million and $154.8 million, respectively. These letters of credit were generally issued for the purchase of inventory.

In connection with various contracts and agreements, the Company provides routine indemnifications relating to the enforceability of intellectual property rights, coverage for legal issues that arise and other items where the Company is acting as the guarantor. Currently, the Company has several such agreements in place. However, based on the Company's historical experience and the estimated probability of future loss, the Company has determined that the fair value of such indemnifications is not material to the Company's financial position or results of operations.

In the ordinary course of its business, the Company is involved in various legal proceedings involving contractual and employment relationships, product liability claims, trademark rights, and a variety of other matters. The Company does not believe there are any pending legal proceedings that will have a material impact on the Company's financial position or results of operations.

Note 16 — Restructuring Charges

During fiscal 2009, the Company took necessary steps to streamline its management structure, enhance consumer focus, drive innovation more quickly to market and establish a more scalable, long–term cost structure. As a result, the Company reduced its global workforce by approximately 5% and incurred pre–tax restructuring charges of $195 million, primarily consisting of severance costs related to the workforce reduction. As nearly all of the restructuring activities were completed in fiscal 2009, the Company does not expect to recognize additional costs in future periods relating to these actions. The restructuring charge is reflected in the corporate expense line in the segment presentation of earnings before interest and taxes in Note 19 — Operating Segments and Related Information.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The activity in the restructuring accrual for the years ended May 31, 2010 and 2009 is as follows (in millions):

Restructuring accrual — June 1, 2008	$ —
Severance and related costs	195.0
Cash payments	(29.4)
Non–cash stock option and restricted stock expense	(19.5)
Foreign currency translation and other	3.5
Restructuring accrual — May 31, 2009	149.6
Cash payments	(142.6)
Foreign currency translation and other	1.2
Restructuring accrual — May 31, 2010	$ 8.2

The accrual balance as of May 31, 2010 will be relieved throughout the first half of fiscal year 2011, as final severance payments are completed. The restructuring accrual is included in Accrued liabilities in the Consolidated Balance Sheet.

Note 17 — Divestitures

On December 17, 2007, the Company completed the sale of the Starter brand business to Iconix Brand Group, Inc. for $60.0 million in cash. This transaction resulted in a gain of $28.6 million during the year ended May 31, 2008.

On April 17, 2008, the Company completed the sale of NIKE Bauer Hockey for $189.2 million in cash to a group of private investors ("the Buyer"). The sale resulted in a net gain of $32.0 million recorded in the fourth quarter of the year ended May 31, 2008. This gain included the recognition of a $46.3 million cumulative foreign currency translation adjustment previously included in accumulated other comprehensive income. As part of the terms of the sale agreement, the Company granted the Buyer a royalty free limited license for the use of certain NIKE trademarks for a transitional period of approximately two years. The Company deferred $41.0 million of the sale proceeds related to this license agreement, to be recognized over the license period.

The gains resulting from these divestitures are reflected in other (income) expense, net and in the corporate expense line in the segment presentation of earnings before interest and taxes in Note 19 — Operating Segments and Related Information.

Note 18 — Risk Management and Derivatives

The Company is exposed to global market risks, including the effect of changes in foreign currency exchange rates and interest rates, and uses derivatives to manage financial exposures that occur in the normal course of business. The Company does not hold or issue derivatives for speculative trading purposes.

The Company formally documents all relationships between hedging instruments and hedged items, as well as its risk management objective and strategy for undertaking hedge transactions. This process includes linking all derivatives to either specific firm commitments or forecasted transactions. The Company also enters into foreign exchange forwards to mitigate the change in fair value of specific assets and liabilities on the balance sheet, which are not designated as hedging instruments under the accounting standards for derivatives and hedging. Accordingly, changes in the fair value of hedges of recorded balance sheet positions are recognized

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

immediately in other (income) expense, net, on the income statement together with the transaction gain or loss from the hedged balance sheet position. The Company classifies the cash flows at settlement from these undesignated hedges in the same category as the cash flows from the related hedged items, generally within the cash provided by operations component of the cash flow statement.

The majority of derivatives outstanding as of May 31, 2010 are designated as either cash flow, fair value or net investment hedges under the accounting standards for derivatives and hedging. All derivatives are recognized on the balance sheet at their fair value and classified based on the instrument's maturity date. The total notional amount of outstanding derivatives as of May 31, 2010 was $6.2 billion, which was primarily comprised of cash flow hedges denominated in Euros, Japanese Yen and British Pounds.

The following table presents the fair values of derivative instruments included within the consolidated balance sheet as of May 31, 2010 and 2009:

	Asset Derivatives			Liability Derivatives		
	Balance Sheet Classification	May 31, 2010	May 31, 2009	Balance Sheet Classification	May 31, 2010	May 31, 2009
			(In millions)			
Derivatives formally designated as hedging instruments:						
Foreign exchange forwards and options	Prepaid expenses and other current assets	$ 315.9	$ 270.4	Accrued liabilities	$ 24.7	$ 34.6
Interest rate swap contracts	Prepaid expenses and other current assets	—	0.1	Accrued liabilities	—	—
Foreign exchange forwards and options	Deferred income taxes and other assets	0.4	81.3	Deferred income taxes and other liabilities	0.1	—
Interest rate swap contracts	Deferred income taxes and other assets	14.6	13.7	Deferred income taxes and other liabilities	—	—
Total derivatives formally designated as hedging instruments		330.9	365.5		24.8	34.6
Derivatives not designated as hedging instruments:						
Foreign exchange forwards and options	Prepaid expenses and other current assets	$ 103.9	$ 12.8	Accrued liabilities	$ 138.9	$ 34.3
Foreign exchange forwards and options	Deferred income taxes and other assets	—	0.4	Deferred income taxes and other liabilities	1.4	—
Total derivatives not designated as hedging instruments		103.9	13.2		140.3	34.3
Total derivatives		$ 434.8	$ 378.7		$ 165.1	$ 68.9

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following tables present the amounts affecting the consolidated statements of income for years ended May 31, 2010 and 2009:

	Amount of Gain (Loss) Recognized in Other Comprehensive Income on Derivatives(1)		Amount of Gain (Loss) Reclassified From Accumulated Other Comprehensive Income into Income(1)		
Derivatives formally designated	Year Ended May 31, 2010	Year Ended May 31, 2009	Location of Gain (Loss) Reclassified From Accumulated Other Comprehensive Income Into Income(1)	Year Ended May 31, 2010	Year Ended May 31, 2009
			(In millions)		
Derivatives designated as cash flow hedges:					
Foreign exchange forwards and options	$ (29.9)	$ 106.3	Revenue	$ 51.4	$ 92.7
Foreign exchange forwards and options	89.0	350.1	Cost of sales	60.0	(13.5)
Foreign exchange forwards and options	4.7	(0.4)	Selling and administrative expense	1.0	0.8
Foreign exchange forwards and options	51.1	165.1	Other (income) expense, net	56.1	67.8
Total designated cash flow hedges	$ 114.9	$ 621.1		$ 168.5	$ 147.8
Derivatives designated as net investment hedges:					
Foreign exchange forwards and options	$ 66.0	$ 161.4	Other (income) expense, net	$ —	$ —

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(1) For the year ended May 31, 2010, $5.2 million of income was recorded to other (income) expense, net as a result of cash flow hedge ineffectiveness. For the year ended May 31, 2009, an immaterial amount of ineffectiveness from cash flow hedges was recorded in other (income) expense, net.

	Amount of Gain (Loss) recognized in Income on Derivatives		
	Year Ended May 31, 2010	Year Ended May 31, 2009	Location of Gain (Loss) Recognized in Income on Derivatives
	(In millions)		
Derivatives designated as fair value hedges:			
Interest rate swaps(1)	$ 7.4	$ 1.5	Interest expense (income), net
Derivatives not designated as hedging instruments:			
Foreign exchange forwards and options	$ (91.1)	$ (83.0)	Other (income) expense, net

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(1) All interest rate swap agreements meet the shortcut method requirements under the accounting standards for derivatives and hedging. Accordingly, changes in the fair values of the interest rate swap agreements are exactly offset by changes in the fair value of the underlying long–term debt. Refer to section "Fair Value Hedges" for additional detail.

Refer to Note 5 — Accrued Liabilities for derivative instruments recorded in accrued liabilities, Note 6 —Fair Value Measurements for a description of how the above financial instruments are valued, Note 14 — Accumulated Other Comprehensive Income and the Consolidated Statement of Shareholders' Equity for additional information on changes in other comprehensive income for the years ended May 31, 2010 and 2009.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Cash Flow Hedges

The purpose of the Company's foreign currency hedging activities is to protect the Company from the risk that the eventual cash flows resulting from transactions in foreign currencies, including revenues, product costs, selling and administrative expenses, investments in U.S. dollar–denominated available–for–sale debt securities and intercompany transactions, including intercompany borrowings, will be adversely affected by changes in exchange rates. It is the Company's policy to utilize derivatives to reduce foreign exchange risks where internal netting strategies cannot be effectively employed. Hedged transactions are denominated primarily in Euros, British Pounds and Japanese Yen. The Company hedges up to 100% of anticipated exposures typically 12 months in advance, but has hedged as much as 34 months in advance.

All changes in fair values of outstanding cash flow hedge derivatives, except the ineffective portion, are recorded in other comprehensive income until net income is affected by the variability of cash flows of the hedged transaction. In most cases, amounts recorded in other comprehensive income will be released to net income some time after the maturity of the related derivative. The consolidated statement of income classification of effective hedge results is the same as that of the underlying exposure. Results of hedges of revenue and product costs are recorded in revenue and cost of sales, respectively, when the underlying hedged transaction affects net income. Results of hedges of selling and administrative expense are recorded together with those costs when the related expense is recorded. Results of hedges of anticipated purchases and sales of U.S. dollar–denominated available–for–sale securities are recorded in other (income) expense, net when the securities are sold. Results of hedges of anticipated intercompany transactions are recorded in other (income) expense, net when the transaction occurs. The Company classifies the cash flows at settlement from these designated cash flow hedge derivatives in the same category as the cash flows from the related hedged items, generally within the cash provided by operations component of the cash flow statement.

Premiums paid on options are initially recorded as deferred charges. The Company assesses the effectiveness of options based on the total cash flows method and records total changes in the options' fair value to other comprehensive income to the degree they are effective.

As of May 31, 2010, $187.2 million of deferred net gains (net of tax) on both outstanding and matured derivatives accumulated in other comprehensive income are expected to be reclassified to net income during the next 12 months as a result of underlying hedged transactions also being recorded in net income. Actual amounts ultimately reclassified to net income are dependent on the exchange rates in effect when derivative contracts that are currently outstanding mature. As of May 31, 2010, the maximum term over which the Company is hedging exposures to the variability of cash flows for its forecasted and recorded transactions is 18 months.

The Company formally assesses both at a hedge's inception and on an ongoing basis, whether the derivatives that are used in the hedging transaction have been highly effective in offsetting changes in the cash flows of hedged items and whether those derivatives may be expected to remain highly effective in future periods. Effectiveness for cash flow hedges is assessed based on forward rates. When it is determined that a derivative is not, or has ceased to be, highly effective as a hedge, the Company discontinues hedge accounting prospectively.

The Company discontinues hedge accounting prospectively when (1) it determines that the derivative is no longer highly effective in offsetting changes in the cash flows of a hedged item (including hedged items such as firm commitments or forecasted transactions); (2) the derivative expires or is sold, terminated, or exercised; (3) it is no longer probable that the forecasted transaction will occur; or (4) management determines that designating the derivative as a hedging instrument is no longer appropriate.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

When the Company discontinues hedge accounting because it is no longer probable that the forecasted transaction will occur in the originally expected period, or within an additional two–month period of time thereafter, the gain or loss on the derivative remains in accumulated other comprehensive income and is reclassified to net income when the forecasted transaction affects net income. However, if it is probable that a forecasted transaction will not occur by the end of the originally specified time period or within an additional two–month period of time thereafter, the gains and losses that were accumulated in other comprehensive income will be recognized immediately in net income. In all situations in which hedge accounting is discontinued and the derivative remains outstanding, the Company will carry the derivative at its fair value on the balance sheet, recognizing future changes in the fair value in other (income) expense, net. For the year ended May 31, 2010, $5.2 million of income was recorded to other (income) expense, net as a result of cash flow hedge ineffectiveness. For the years ended 2009 and 2008, the Company recorded in other (income) expense an immaterial amount of ineffectiveness from cash flow hedges.

Fair Value Hedges

The Company is also exposed to the risk of changes in the fair value of certain fixed–rate debt attributable to changes in interest rates. Derivatives currently used by the Company to hedge this risk are receive–fixed, pay–variable interest rate swaps. As of May 31, 2010, all interest rate swap agreements are designated as fair value hedges of the related long–term debt and meet the shortcut method requirements under the accounting standards for derivatives and hedging. Accordingly, changes in the fair values of the interest rate swap agreements are exactly offset by changes in the fair value of the underlying long–term debt. The cash flows associated with the Company's fair value hedges are periodic interest payments while the swaps are outstanding, which are reflected in net income within the cash provided by operations component of the cash flow statement. No ineffectiveness has been recorded to net income related to interest rate swaps designated as fair value hedges for the years ended May 31, 2010, 2009 and 2008.

In fiscal 2003, the Company entered into a receive–floating, pay–fixed interest rate swap agreement related to a Japanese Yen denominated intercompany loan with one of the Company's Japanese subsidiaries. This interest rate swap was not designated as a hedge under the accounting standards for derivatives and hedging. Accordingly, changes in the fair value of the swap were recorded to net income each period through maturity as a component of interest expense (income), net. Both the intercompany loan and the related interest rate swap matured during the year ended May 31, 2009.

Net Investment Hedges

The Company also hedges the risk of variability in foreign–currency–denominated net investments in wholly–owned international operations. All changes in fair value of the derivatives designated as net investment hedges, except ineffective portions, are reported in the cumulative translation adjustment component of other comprehensive income along with the foreign currency translation adjustments on those investments. The Company classifies the cash flows at settlement of its net investment hedges within the cash used by investing component of the cash flow statement. The Company assesses hedge effectiveness based on changes in forward rates. The Company recorded no ineffectiveness from its net investment hedges for the years ended May 31, 2010, 2009, and 2008.

Credit Risk

The Company is exposed to credit–related losses in the event of non–performance by counterparties to hedging instruments. The counterparties to all derivative transactions are major financial institutions with investment grade credit ratings. However, this does not eliminate the Company's exposure to credit risk with

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

these institutions. This credit risk is limited to the unrealized gains in such contracts should any of these counterparties fail to perform as contracted. To manage this risk, the Company has established strict counterparty credit guidelines that are continually monitored and reported to senior management according to prescribed guidelines. The Company utilizes a portfolio of financial institutions either headquartered or operating in the same countries the Company conducts its business. As a result of the above considerations, the Company considers the impact of the risk of counterparty default to be immaterial.

Certain of the Company's derivative instruments contain credit risk related contingent features. As of May 31, 2010, the Company was in compliance with all such credit risk related contingent features. The aggregate fair value of derivative instruments with credit risk related contingent features that are in a net liability position at May 31, 2010 was $18.3 million. The Company was not required to post any collateral as a result of these contingent features.

Note 19 — Operating Segments and Related Information

Operating Segments. The Company's operating segments are evidence of the structure of the Company's internal organization. The major segments are defined by geographic regions for operations participating in NIKE Brand sales activity excluding NIKE Golf. Each NIKE Brand geographic segment operates predominantly in one industry: the design, production, marketing and selling of sports and fitness footwear, apparel, and equipment. In fiscal 2009, the Company initiated a reorganization of the NIKE Brand into a new model consisting of six geographies. Effective June 1, 2009, the Company's new reportable operating segments for the NIKE Brand are: North America, Western Europe, Central and Eastern Europe, Greater China, Japan, and Emerging Markets. Previously, NIKE Brand operations were organized into the following four geographic regions: U.S., Europe, Middle East and Africa (collectively, "EMEA"), Asia Pacific, and Americas.

The Company's "Other" category is broken into two components for presentation purposes to align with the way management views the Company. The "Global Brand Divisions" category primarily represents NIKE Brand licensing businesses that are not part of a geographic operating segment, selling, general and administrative expenses that are centrally managed for the NIKE Brand and costs associated with product development and supply chain operations. The "Other Businesses" category primarily consists of the activities of Cole Haan, Converse Inc., Hurley International LLC, NIKE Golf and Umbro Ltd. Activities represented in the "Other" category are considered immaterial for individual disclosure. Prior period amounts have been reclassified to conform to the Company's new operating structure described above.

Revenues as shown below represent sales to external customers for each segment. Intercompany revenues have been eliminated and are immaterial for separate disclosure.

Corporate consists of unallocated general and administrative expenses, which includes expenses associated with centrally managed departments, depreciation and amortization related to the Company's headquarters, unallocated insurance and benefit programs, including stock–based compensation, certain foreign currency gains and losses, including hedge gains and losses, certain corporate eliminations and other items.

Effective June 1, 2009, the primary financial measure used by the Company to evaluate performance of individual operating segments is Earnings Before Interest and Taxes (commonly referred to as "EBIT") which represents net income before interest expense (income), net and income taxes in the Consolidated Statements of Income. Reconciling items for EBIT represent corporate expense items that are not allocated to the operating segments for management reporting. Previously, the Company evaluated performance of individual operating segments based on pre–tax income or income before income taxes.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

As part of the Company's centrally managed foreign exchange risk management program, standard foreign currency rates are assigned to each NIKE Brand entity in our geographic operating segments and are used to record any non–functional currency revenues or product purchases into the entity's functional currency. Geographic operating segment revenues and cost of sales reflect use of these standard rates. For all NIKE Brand operating segments, differences between assigned standard foreign currency rates and actual market rates are included in Corporate together with foreign currency hedge gains and losses generated from the centrally managed foreign exchange risk management program and other conversion gains and losses. For the years ended May 31, 2009 and 2008, foreign currency hedge results along with other conversion gains and losses generated by the Western Europe and Central and Eastern Europe geographies were recorded in their respective results.

Additions to long–lived assets as presented in the following table represent capital expenditures.

Accounts receivable, inventories and property, plant and equipment for operating segments are regularly reviewed by management and are therefore provided below.

Certain prior year amounts have been reclassified to conform to fiscal 2010 presentation.

NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

	Year Ended May 31,		
	2010	2009	2008
		(In millions)	
Revenue			
North America	$ 6,696.0	$ 6,778.3	$ 6,660.5
Western Europe	3,892.0	4,139.1	4,320.0
Central and Eastern Europe	1,149.9	1,373.2	1,309.2
Greater China	1,741.8	1,743.3	1,353.6
Japan	882.0	925.9	822.4
Emerging Markets	2,041.6	1,702.0	1,630.3
Global Brand Divisions	105.3	95.3	117.9
Total NIKE Brand	16,508.6	16,757.1	16,213.9
Other Businesses	2,529.5	2,419.0	2,413.1
Corporate	(24.1)	—	—
Total NIKE Consolidated Revenues	$19,014.0	$19,176.1	$18,627.0
Earnings Before Interest and Taxes			
North America	$ 1,538.1	$ 1,429.3	$ 1,460.4
Western Europe	855.7	939.1	922.5
Central and Eastern Europe	281.2	415.1	358.4
Greater China	637.1	575.2	430.7
Japan	180.3	205.4	178.9
Emerging Markets	492.6	342.6	306.6
Global Brand Divisions	(866.8)	(811.5)	(736.8)
Total NIKE Brand	3,118.2	3,095.2	2,920.7
Other Businesses(1)	299.4	(192.6)	358.6
Corporate(2)	(894.4)	(955.6)	(853.5)
Total NIKE Consolidated Earnings Before Interest and Taxes	2,523.2	1,947.0	2,425.8
Interest expense (income), net	6.3	(9.5)	(77.1)
Total NIKE Consolidated Earnings Before Taxes	$ 2,516.9	$ 1,956.5	$ 2,502.9
Additions to Long–lived Assets			
North America	$ 45.3	$ 99.2	$ 141.9
Western Europe	58.9	69.6	63.5
Central and Eastern Europe	4.3	8.1	5.5
Greater China	80.4	58.5	13.1
Japan	11.6	10.0	21.9
Emerging Markets	10.5	10.9	12.4
Global Brand Divisions	29.9	37.8	22.6
Total NIKE Brand	240.9	294.1	280.9
Other Businesses	52.1	89.6	61.5
Corporate	42.1	72.0	106.8
Total Additions to Long–lived Assets	$ 335.1	$ 455.7	$ 449.2
Depreciation			
North America	$ 64.7	$ 64.3	$ 52.4
Western Europe	57.1	51.4	61.1
Central and Eastern Europe	4.6	4.0	3.7
Greater China	11.0	7.2	3.8
Japan	26.2	29.9	20.4
Emerging Markets	11.0	10.2	10.8
Global Brand Divisions	33.8	42.3	34.3
Total NIKE Brand	208.4	209.3	186.5
Other Businesses	45.7	37.5	28.1
Corporate	69.6	88.2	89.0
Total Depreciation	$ 323.7	$ 335.0	$ 303.6

NIKE, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

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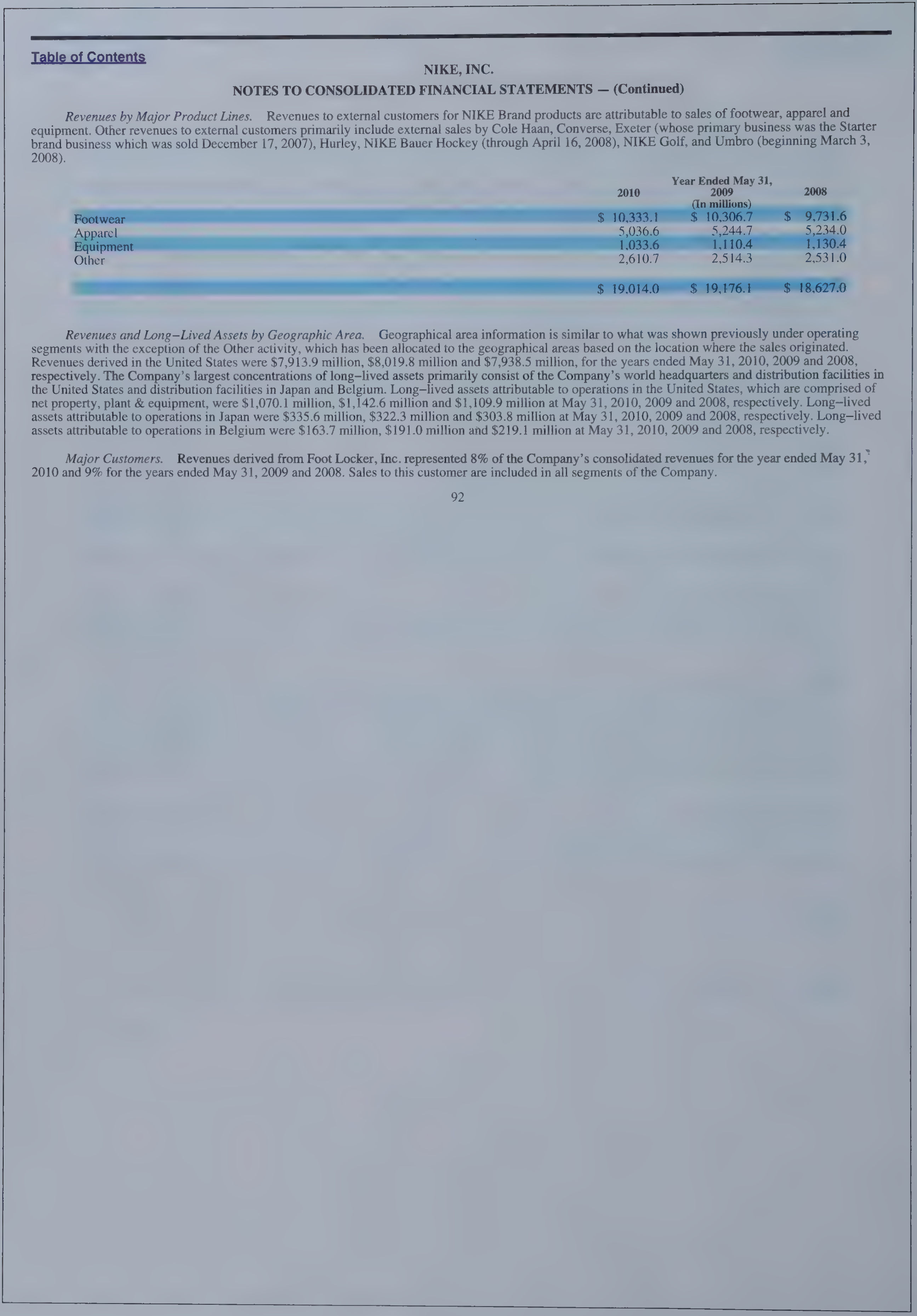
(1) During the year ended May 31, 2009, the Other category included a pre–tax charge of $401.3 million for the impairment of goodwill, intangible and other assets of Umbro, which was recorded in the third quarter of fiscal 2009. See Note 4 — Acquisition, Identifiable Intangible Assets, Goodwill and Umbro Impairment for more information.

(2) During the year ended May 31, 2009, Corporate expense included pre–tax charges of $195.0 million for the Company's restructuring activities, which were completed in the fourth quarter of fiscal 2009. See Note 16 — Restructuring Charges for more information.

	Year Ended May 31, 2010 (In millions)	Year Ended May 31, 2009 (In millions)
Accounts Receivable, net		
North America	$ 848.0	$ 897.7
Western Europe	401.8	508.8
Central and Eastern Europe	293.6	368.3
Greater China	128.9	122.3
Japan	166.8	207.2
Emerging Markets	327.2	268.2
Global Brand Divisions	22.8	53.3
Total NIKE Brand	2,189.1	2,425.8
Other Businesses	442.1	439.7
Corporate	18.6	18.4
Total Accounts Receivable, net	$ 2,649.8	$ 2,883.9
Inventories		
North America	$ 767.5	$ 868.8
Western Europe	347.2	341.6
Central and Eastern Europe	124.8	278.1
Greater China	103.5	110.4
Japan	68.3	95.7
Emerging Markets	262.2	258.2
Global Brand Divisions	20.6	32.4
Total NIKE Brand	1,694.1	1,985.2
Other Businesses	346.7	371.8
Corporate	—	—
Total Inventories	$ 2,040.8	$ 2,357.0
Property, Plant and Equipment, net		
North America	$ 324.7	$ 354.3
Western Europe	282.1	326.5
Central and Eastern Europe	12.3	15.0
Greater China	145.5	78.2
Japan	332.6	318.5
Emerging Markets	47.0	47.3
Global Brand Divisions	99.6	103.1
Total NIKE Brand	1,243.8	1,242.9
Other Businesses	167.4	163.7
Corporate	520.7	551.1
Total Property, Plant and Equipment, net	$ 1,931.9	$ 1,957.7



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NIKE, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Revenues by Major Product Lines. Revenues to external customers for NIKE Brand products are attributable to sales of footwear, apparel and equipment. Other revenues to external customers primarily include external sales by Cole Haan, Converse, Exeter (whose primary business was the Starter brand business which was sold December 17, 2007), Hurley, NIKE Bauer Hockey (through April 16, 2008), NIKE Golf, and Umbro (beginning March 3, 2008).

	Year Ended May 31,		
	2010	2009 (In millions)	2008
Footwear	$ 10,333.1	$ 10,306.7	$ 9,731.6
Apparel	5,036.6	5,244.7	5,234.0
Equipment	1,033.6	1,110.4	1,130.4
Other	2,610.7	2,514.3	2,531.0
	$ 19,014.0	$ 19,176.1	$ 18,627.0

Revenues and Long–Lived Assets by Geographic Area. Geographical area information is similar to what was shown previously under operating segments with the exception of the Other activity, which has been allocated to the geographical areas based on the location where the sales originated. Revenues derived in the United States were $7,913.9 million, $8,019.8 million and $7,938.5 million, for the years ended May 31, 2010, 2009 and 2008, respectively. The Company's largest concentrations of long–lived assets primarily consist of the Company's world headquarters and distribution facilities in the United States and distribution facilities in Japan and Belgium. Long–lived assets attributable to operations in the United States, which are comprised of net property, plant & equipment, were $1,070.1 million, $1,142.6 million and $1,109.9 million at May 31, 2010, 2009 and 2008, respectively. Long–lived assets attributable to operations in Japan were $335.6 million, $322.3 million and $303.8 million at May 31, 2010, 2009 and 2008, respectively. Long–lived assets attributable to operations in Belgium were $163.7 million, $191.0 million and $219.1 million at May 31, 2010, 2009 and 2008, respectively.

Major Customers. Revenues derived from Foot Locker, Inc. represented 8% of the Company's consolidated revenues for the year ended May 31, 2010 and 9% for the years ended May 31, 2009 and 2008. Sales to this customer are included in all segments of the Company.

Appendix D

International Financial Reporting Standards (IFRS)

The Need for Global Accounting Standards

As discussed in Chapter 1, the Financial Accounting Standards Board (FASB) establishes generally accepted accounting principles (GAAP) for public companies in the United States. Of course, there is a world beyond the borders of the United States. In recent years, the removal of trade barriers and the growth in cross-border equity and debt issuances have led to a dramatic increase in international commerce. As a result, companies are often reporting financial results to users outside of the United States.

Historically, accounting standards have varied considerably across countries. These variances have been driven by cultural, legal, and political differences, and resulted in financial statements that were not easily comparable and difficult to interpret. These differences caused problems for companies in Europe and Asia, where local economies have become increasingly tied to international commerce.

During the last decade, however, a common set of International Financial Reporting Standards (IFRS) has emerged to reduce cross-country differences in accounting standards, primarily in countries outside of North America. While much of the world has migrated to IFRS, the United States has not. Because of the size of the United States and its significant role in world commerce, however, U.S. GAAP still has a global impact. As a result, there are currently two major accounting standard-setting efforts in the world, U.S. GAAP and IFRS. These two sets of accounting standards add cost and complexity for companies doing business and obtaining financing internationally.

Overview of IFRS

International Financial Reporting Standards (IFRS) have emerged during the last 10 years to meet the financial reporting needs of an increasingly global business environment.

What Is IFRS? International Financial Reporting Standards are a set of global accounting standards developed by an international standard-setting body called the International Accounting Standards Board (IASB). Like the Financial Accounting Standards Board (FASB), the IASB is an independent entity that establishes accounting rules. Unlike the FASB, the IASB does not establish accounting rules for any specific country. Rather, it develops accounting rules that can be used by a variety of countries, with the goal of developing a single set of global accounting standards.

Who Uses IFRS? IFRS applies to companies that issue publicly traded debt or equity securities, called **public companies**, in countries that have adopted IFRS as their accounting standards. Since 2005, all 27 countries in the European Union (EU) have been required to prepare financial statements using IFRS. In addition, over

100 other countries have adopted or are planning to adopt IFRS for public companies (see Exhibit 1). Canada will adopt IFRS by 2011, with Mexico following in 2012. Japan will consider mandatory use of IFRS in 2012. In addition, the G20 (Group of 20) leadership has called for uniform global accounting standards by June 2011.

EXHIBIT 1

IFRS Adopters

Anguilla
Antigua and Barbuda
Armenia
Austria
Australia
Bahamas
Bahrain
Barbados
Belgium
Bosnia and Herzegovina
Botswana
Brazil
Bulgaria
Chile
Costa Rica
Croatia (Hrvatska)
Cyprus
Czech Republic
Denmark
Dominican Republic
Ecuador
Egypt
El Salvador
Fiji
Georgia
Ghana
Gibraltar
Grenada
Greece
Guatemala
Guyana
Haiti
Honduras
Hong Kong
Iraq
Israel
Jamaica
Jordan
Kazakhstan
Kenya
Kuwait
Kyrgyzstan
Laos
Lebanon
Lesotho
Macedonia
Malawi
Maldives
Mauritius
Mongolia
Montenegro
Morocco
Mozambique
Myanmar
Namibia
Netherlands Antilles
Nepal
New Zealand
Nicaragua
Oman
Panama
Papua New Guinea
Paraguay
Peru
Qatar
St. Kitts and Nevis
Saudi Arabia
Serbia (Republic of)
Sierra Leone
South Africa
Sri Lanka
Suriname
Swaziland
Switzerland
Tajikistan
Tanzania
Trinidad and Tobago
Turkey
Uganda
Ukraine
United Arab Emirates
Virgin Islands (British)
West Bank/Gaza
Zambia
Zimbabwe

Source: http://www.iasplus.com/country/useias.htm.

U.S. GAAP and IFRS: The Road Forward

The United States has not formally adopted IFRS for U.S. companies. The wide acceptance being gained by IFRS around the world, however, has placed considerable pressure on the United States to align U.S. GAAP with IFRS. There are two possible paths that the United States could take to achieve this: (1) adoption of IFRS by the U.S. Securities and Exchange Commission and (2) convergence of U.S. GAAP and IFRS. These two options are briefly discussed below.

Adoption of IFRS by the SEC The U.S. Securities and Exchange Commission (SEC) is the U.S. governmental agency that has authority over the accounting and financial

disclosures for U.S. public companies. Only the SEC has the authority to adopt IFRS for U.S. public companies. In 2008, the SEC presented a "roadmap" to adopting IFRS, which outlined a timetable along with a set of "milestones" that needed to be met before the SEC would be willing to adopt IFRS. In 2010, the SEC reiterated the milestones outlined in the roadmap. According to the work plan, the SEC plans on deciding whether to incorporate IFRS into U.S. GAAP for public companies by 2011. If adopted, companies could begin reporting under IFRS as early as 2015.

If the SEC adopts IFRS for U.S. GAAP, it has stated the FASB would retain a "critical and substantive role in achieving the goal of global accounting standards." This suggests that the FASB will not necessarily be eliminated. More likely, the FASB would provide input to the IASB so that U.S. accounting perspectives are considered.

Convergence of U.S. GAAP and IFRS If the SEC does not adopt IFRS, an alternative approach would be for the FASB and IASB to converge U.S. GAAP and IFRS. This would involve aligning IFRS and U.S. GAAP one topic at a time, slowly merging IFRS and U.S. GAAP into two broadly uniform sets of accounting standards. To this end, the FASB and IASB have agreed to work together on a number of difficult and high-profile accounting issues. These issues frame a large portion of the disagreement between the two sets of standards and, if accomplished, will significantly reduce the differences between U.S. GAAP and IFRS. The projects selected for the convergence effort represent some of the more technical topics in accounting, and are covered in intermediate and advanced accounting courses. The FASB and IASB have set mid-2011 as the deadline for establishing final standards.

One of the major limitations of convergence is that both the FASB and IASB continue to operate as the accounting standard-setting bodies for their respective jurisdictions. As such, convergence would not result in a single set of global accounting standards. Only those standards that go through the joint FASB–IASB standard-setting process would be released as uniform. Standards that do not go through a joint standard-setting process may create inconsistencies between U.S. GAAP and IFRS. Thus, convergence does not guarantee complete uniformity between U.S. GAAP and IFRS. A brief summary of the major U.S. decisions related to IFRS are outlined in the table below.

The Road to IFRS

2002	IASB and FASB jointly agree to work toward making IFRS and U.S. GAAP compatible.
2005	EU adopts IFRS for all companies engaged in international markets.
	SEC and European Commission jointly agree to work toward a "Roadmap for Convergence."
2007	SEC allows foreign (non-U.S.) companies to use IFRS financial statements to meet U.S. filing requirements.
2008	SEC issues proposed "Roadmap" with timeline and key milestones for adopting IFRS.
2010	SEC reiterates milestones in the proposed "Roadmap."
2011	Target date for FASB and IASB convergence on major standard-setting projects.
	Target date for SEC's tentative decision regarding IFRS adoption.
2015	Earliest date the SEC would require IFRS for U.S. public companies.

Differences Between U.S. GAAP and IFRS

U.S. GAAP and IFRS differ both in their approach to standard setting, as well as their financial statement presentation and recording of transactions.

Rules-Based vs. Principles Approach to Standard Setting U.S. GAAP is considered to be a "rules-based" approach to accounting standard setting. The accounting standards provide detailed and specific rules on the accounting for business transactions. There are few exceptions or varying interpretations of the accounting for a business event. This structure is consistent with the U.S. legal and regulatory system, reflecting the social and economic values of the United States.

In contrast, IFRS is designed to meet the needs of many countries. Differences in legal, political, and economic systems create different needs for and uses of financial information in different countries. For example, Germany needs a financial reporting system that reflects the central role of banks in its financial system, while the Netherlands needs a financial reporting system that reflects the significant role of outside equity in its financial system.

To accommodate economic, legal, and social diversity, IFRS must be broad enough to capture these differences, while still presenting comparable financial statements. Under IFRS, there is greater opportunity for different interpretations of the accounting treatment of a business event across different business entities. To support this, IFRS often has more extensive disclosures that support alternative assumptions. Thus, IFRS provides more latitude for professional judgment than typically found in comparable U.S. GAAP. Many countries find this feature attractive in reducing regulatory costs associated with using and auditing financial reports. This "principles-based" approach presents one of the most significant challenges to adopting IFRS in the United States.

Technical Differences Between IFRS and U.S. GAAP Although U.S. GAAP is similar to IFRS, differences arise in the presentation format, balance sheet valuations, and technical accounting procedures. The Mornin' Joe International financial statements presented on pages 714–718 highlight the financial statement format, presentation, and recording differences between U.S. GAAP and IFRS. In addition, the International Connection boxes in Chapters 1, 4, 7, 10, 13, and 16 discuss some of the significant differences between U.S. GAAP and IFRS. A more comprehensive summary of the key differences between U.S. GAAP and IFRS that are relevant to an introductory accounting course is summarized in the table on the following pages.

Discussion Questions

1. Briefly discuss why global accounting standards are needed in today's business environment.
2. What are International Financial Reporting Standards? Who uses these accounting standards?
3. What body is responsible for setting International Financial Reporting Standards?
4. Briefly discuss the differences between (a) convergence of U.S. GAAP with IFRS and (b) adoption of IFRS by the U.S. Securities and Exchange Commission.
5. Briefly discuss the difference between (a) a "rules-based" approach to accounting standard setting and (b) a "principles-based" approach to accounting standard setting.
6. How is property, plant, and equipment measured on the balance sheet under IFRS? How does this differ from the way property, plant, and equipment is measured on the balance sheet under U.S. GAAP?
7. What inventory costing methods are allowed under IFRS? How does this differ from the treatment under U.S. GAAP?

Comparison of Accounting for Selected Items Under U.S. GAAP and IFRS

	U.S. GAAP	IFRS	Text Reference
General:			
Financial statement titles	Balance Sheet Income Statement Statement of Stockholders' Equity Statement of Cash Flows	Statement of Financial Position Statement of Comprehensive Income Statement of Changes in Equity Statement of Cash Flows	General
Financial periods presented	Public companies must present two years of comparative information for income statement, statement of stockholders' equity, and statement of cash flows	One year of comparative information must be presented	General
Conceptual basis for standard setting	"Rules-based" approach	"Principles-based" approach	General
Internal control requirements	Sarbanes-Oxley Act (SOX) Section 404		Ch 8; LO 1
Balance Sheet:	***Balance Sheet***	***Statement of Financial Position***	
Terminology differences	"Payable" "Stockholders' Equity" "Net Income (Loss)"	"Provision" "Capital and Reserves" "Profit or (Loss)"	Ch 11 Ch 13 General
Inventory—LIFO	LIFO allowed	LIFO prohibited	Ch 7; LO 3, 4, 5
Inventory—valuation	Market is defined as "replacement value" Reversal of lower-of-cost-or-market write-downs not allowed	Market is defined as "fair value" Reversal of write-downs allowed	Ch 7; LO 6 Ch 7; LO 6
Long-lived assets	May NOT be revalued to fair value	May be revalued to fair value on a regular basis	Ch 10; LO 1

(Continued)

Comparison of Accounting for Selected Items Under U.S. GAAP and IFRS *(Continued)*

	U.S. GAAP	IFRS	Text Reference
Land held for investment	Treated as held for use or sale, and recorded at historical cost	May be accounted for on a historical cost basis or on a fair value basis with changes in fair value recognized through profit and loss	Ch 10; LO 1
Property, plant, & equipment—valuation	Historical cost If impaired, impairment loss may NOT be reversed in future periods	May select between historical cost or revalued amount (a form of fair value) If impaired, impairment loss may be reversed in future periods	Ch 10; LO 1
Cost of major overhaul (Capital and revenue expenditures)	Different treatment for ordinary repairs and maintenance, asset improvement, extraordinary repairs	Typically included as part of the cost of the asset if future economic benefit is probable and can be reliably measured	Ch 10; LO 1
Intangible assets—valuation	Acquisition cost, unless impaired	Fair value permitted if the intangible asset trades in an active market	Ch 10; LO 5
Intangible assets—impairment loss reversal	Prohibited	Prohibited for goodwill, but allowed for other intangible assets	Ch 10; LO 5
Deferred tax liability	The amount due within one year classified as current	Always noncurrent	Appendix D
Income Statement:	***Income Statement***	***Statement of Comprehensive Income***	
Revenue recognition	Detailed guidance depending on the transaction	Broad guidance	Ch 3; LO 1
Classification of expenses on income statement	Public companies must present expenses on the income statement by function (e.g., cost of goods sold, selling, administrative)	Expenses may be presented based either by function (e.g., cost of goods sold, selling) or by the nature of expense (e.g., wages expense, interest expense)	Ch 6; LO 1
Research and development costs	Expensed as incurred	Research costs expensed Development costs capitalized once technical and economic feasibility attained	Ch 10; LO 5
Extraordinary items	Allowed for items that are both unusual in nature and infrequent in occurrence	Prohibited	Ch 17; Appendix

(Continued)

Comparison of Accounting for Selected Items Under U.S. GAAP and IFRS *(Concluded)*

	U.S. GAAP	IFRS	Text Reference
Statement of Cash Flows:	***Statement of Cash Flows***	***Statement of Cash Flows***	
Classification of interest paid or received	Treated as an operating activity	Interest paid may be treated as either an operating or a financing activity, interest received may be treated as an operating or investing activity	Ch 16; LO 3
Classification of dividend paid or received	Dividend paid treated as a financing activity, Dividend received treated as an operating activity	Dividend paid may be treated as either an operating or a financing activity, dividend received may be treated as an operating or investing activity	Ch 16; LO 3

Glossary

A

absorption costing The reporting of the costs of manufactured products, normally direct materials, direct labor, and factory overhead, as product costs. (989)

accelerated depreciation method A depreciation method that provides for a higher depreciation amount in the first year of the asset's use, followed by a gradually declining amount of depreciation. (453)

account An accounting form that is used to record the increases and decreases in each financial statement item. (50)

account form The form of balance sheet that resembles the basic format of the accounting equation, with assets on the left side and Liabilities and Owner's Equity sections on the right side. (18, 262)

account payable The liability created by a purchase on account. (11)

account receivable A claim against the customer created by selling merchandise or services on credit. (12, 64, 400)

accounting An information system that provides reports to stakeholders about the economic activities and condition of a business. (3)

accounting cycle The process that begins with analyzing and journalizing transactions and ends with the post-closing trial balance. (164)

accounting equation Assets = Liabilities + Owner's Equity. (9)

accounting period concept The accounting concept that assumes that the economic life of the business can be divided into time periods. (104)

accounting system The methods and procedures used by a business to collect, classify, summarize, and report financial data for use by management and external users. (212)

accounts payable subsidiary ledger The subsidiary ledger containing the individual accounts with suppliers (creditors). (213)

accounts receivable analysis A company's ability to collect its accounts receivable. (789)

accounts receivable subsidiary ledger The subsidiary ledger containing the individual accounts with customers. (213)

accounts receivable turnover The relationship between net sales and accounts receivable, computed by dividing the net sales by the average net accounts receivable; measures how frequently during the year the accounts receivable are being converted to cash. (415, 789)

accrual basis of accounting Under this basis of accounting, revenues and expenses are reported in the income statement in the period in which they are earned or incurred. (104)

accrued expenses Expenses that have been incurred but not recorded in the accounts. (108)

accrued revenues Revenues that have been earned but not recorded in the accounts. (107)

accumulated depreciation The contra asset account credited when recording the depreciation of a fixed asset. (117)

accumulated other comprehensive income The cumulative effects of other comprehensive income items reported separately in the Stockholders' Equity section of the balance sheet. (685)

activities The types of work, or actions, involved in a manufacturing process or service activity. (1176)

activity base (driver) A measure of activity that is related to changes in cost. Used in analyzing and classifying cost behavior. Activity bases are also used in the denominator in calculating the predetermined factory overhead rate to assign overhead costs to cost objects. (880, 966, 1177)

activity rate The estimated activity cost divided by estimated activity-base usage. (1177).

activity-based costing (ABC) A cost allocation method that identifies activities causing the incurrence of costs and allocates these costs to products (or other cost objects), based on activity drivers (bases). (881, 1176)

adjusted trial balance The trial balance prepared after all the adjusting entries have been posted. (123)

adjusting entries The journal entries that bring the accounts up to date at the end of the accounting period. (105)

adjusting process An analysis and updating of the accounts when financial statements are prepared. (105)

administrative expenses (general expenses) Expenses incurred in the administration or general operations of the business. (261)

aging the receivables The process of analyzing the accounts receivable and classifying them according to various age groupings, with the due date being the base point for determining age. (407)

Allowance for Doubtful Accounts The contra asset account for accounts receivable. (403)

allowance method The method of accounting for uncollectible accounts that provides an expense for uncollectible receivables in advance of their write-off. (401)

amortization The periodic transfer of the cost of an intangible asset to expense. (460)

annuity A series of equal cash flows at fixed intervals. (1215)

assets The resources owned by a business. (9, 52)

available-for-sale securities Securities that management expects to sell in the future but which are not actively traded for profit. (677)

average inventory cost flow method The method of inventory costing that is based on the assumption that costs should be charged against revenue by using the weighted average unit cost of the items sold. (318)

average rate of return A method of evaluating capital investment proposals that focuses on the expected profitability of the investment. (1211)

B

Bad Debt Expense The operating expense incurred because of the failure to collect receivables. (401)

balance of the account The amount of the difference between the debits and the credits that have been entered into an account. (51)

balance sheet A list of the assets, liabilities, and owner's equity as of a specific date, usually at the close of the last day of a month or a year. (15)

balanced scorecard A performance evaluation approach that incorporates multiple performance dimensions by combining financial and nonfinancial measures. (1127)

bank reconciliation The analysis that details the items responsible for the difference between the cash balance reported in the bank statement and the balance of the cash account in the ledger. (371)

bank statement A summary of all transactions mailed to the depositor or made available online by the bank each month. (368)

bond A form of an interest-bearing note used by corporations to borrow on a long-term basis. (624)

bond indenture The contract between a corporation issuing bonds and the bondholders. (626)

book value The cost of a fixed asset minus accumulated depreciation on the asset. (453)

book value of the asset (or net book value) The difference between the cost of a fixed asset and its accumulated depreciation. (118)

boot The amount a buyer owes a seller when a fixed asset is traded in on a similar asset. (466)

break-even point The level of business operations at which revenues and expired costs are equal. (975)

budget An accounting device used to plan and control resources of operational departments and divisions. (1016)

budget performance report A report comparing actual results with budget figures. (1071)

budgetary slack Excess resources set within a budget to provide for uncertain events. (1018)

budgeted variable factory overhead The standard variable overhead for the actual units produced. (1080)

business An organization in which basic resources (inputs), such as materials and labor, are assembled and processed to provide goods or services (outputs) to customers. (2)

business combination A business making an investment in another business by acquiring a controlling share, often greater than 50%, of the outstanding voting stock of another corporation by paying cash or exchanging stock. (674)

business entity concept A concept of accounting that limits the economic data in the accounting system to data related directly to the activities of the business. (7)

business transaction An economic event or condition that directly changes an entity's financial condition or directly affects its results of operations. (9)

C

capital account An account used for a proprietorship that represents the owner's equity. (52)

capital expenditures The costs of acquiring fixed assets, adding to a fixed asset, improving a fixed asset, or extending a fixed asset's useful life. (447)

capital expenditures budget The budget summarizing future plans for acquiring plant facilities and equipment. (1035)

capital investment analysis The process by which management plans, evaluates, and controls long-term capital investments involving property, plant, and equipment. (1210)

capital leases Leases that include one or more provisions that result in treating the leased assets as purchased assets in the accounts. (448)

capital rationing The process by which management plans, evaluates, and controls long-term capital investments involving fixed assets. (1226)

carrying amount The balance of the bonds payable account (face amount of the bonds) less any unamortized discount or plus any unamortized premium. (633)

cash Coins, currency (paper money), checks, money orders, and money on deposit that is available for unrestricted withdrawal from banks and other financial institutions. (365)

cash basis of accounting Under this basis of accounting, revenues and expenses are reported in the income statement in the period in which cash is received or paid. (104)

cash budget A budget of estimated cash receipts and payments. (1032)

cash dividend A cash distribution of earnings by a corporation to its shareholders. (591)

cash equivalents Highly liquid investments that are usually reported with cash on the balance sheet. (376)

cash flow per share Normally computed as cash flow from operations per share. (727)

cash flows from financing activities The section of the statement of cash flows that reports cash flows from transactions affecting the equity and debt of the business. (725)

cash flows from investing activities The section of the statement of cash flows that reports cash flows from transactions affecting investments in noncurrent assets. (724)

cash flows from operating activities The section of the statement of cash flows that reports the cash transactions affecting the determination of net income. (724)

cash payback period The expected period of time that will elapse between the date of a capital expenditure and the complete recovery in cash (or equivalent) of the amount invested. (1212)

cash payments journal The special journal in which all cash payments are recorded. (223)

cash receipts journal The special journal in which all cash receipts are recorded. (218)

cash short and over account An account which has recorded errors in cash sales or errors in making

change causing the amount of actual cash on hand to differ from the beginning amount of cash plus the cash sales for the day. (366)

Certified Public Accountant (CPA) Public accountants who have met a state's education, experience, and examination requirements. (6)

chart of accounts A list of the accounts in the ledger. (52)

clearing account Another name for the income summary account because it has the effect of clearing the revenue and expense accounts of their balances. (159)

closing entries The entries that transfer the balances of the revenue, expense, and drawing accounts to the owner's capital account. (158)

closing process The transfer process of converting temporary account balances to zero by transferring the revenue and expense account balances to Income Summary, transferring the income summary account balance to the owner's capital account, and transferring the owner's drawing account to the owner's capital account. (158)

closing the books The process of transferring temporary accounts balances to permanent accounts at the end of the accounting period. (158)

common stock The stock outstanding when a corporation has issued only one class of stock. (585)

common-sized statement A financial statement in which all items are expressed only in relative terms. (785)

compensating balance A requirement by some banks requiring depositors to maintain minimum cash balances in their bank accounts. (377)

comprehensive income All changes in stockholders' equity during a period, except those resulting from dividends and stockholders' investments. (684)

consigned inventory Merchandise that is shipped by manufacturers to retailers who act as the manufacturer's selling agent. (331)

consignee The name for the retailer in a consigned inventory arrangement. (331)

consignor The name for the manufacturer in a consigned inventory arrangement. (331)

consolidated financial statements Financial statements resulting from combining parent and subsidiary statements. (674)

contingent liabilities Liabilities that may arise from past transactions if certain events occur in the future. (507)

continuous budgeting A method of budgeting that provides for maintaining a 12-month projection into the future. (1018)

continuous process improvement A management approach that is part of the overall total quality management philosophy. The approach requires all employees to constantly improve processes of which they are a part or for which they have managerial responsibility. (841)

contra account (or contra asset account) An account offset against another account. (117)

contract rate The periodic interest to be paid on the bonds that is identified in the bond indenture; expressed as a percentage of the face amount of the bond. (627)

contribution margin Sales less variable costs and variable selling and administrative expenses. (973)

contribution margin ratio The percentage of each sales dollar that is available to cover the fixed costs and provide an operating income. (973)

control environment The overall attitude of management and employees about the importance of controls. (361)

controllable expenses Costs that can be influenced by the decisions of a manager. (1118)

controllable revenues Revenues earned by the profit center. (1118)

controllable variance The difference between the actual amount of variable factory overhead cost incurred and the amount of variable factory overhead budgeted for the standard product. (1079)

controller The chief management accountant of a division or other segment of a business. (840)

controlling A phase in the management process that consists of monitoring the operating results of implemented plans and comparing the actual results with the expected results. (841)

controlling account The account in the general ledger that summarizes the balances of the accounts in a subsidiary ledger. (213)

conversion costs The combination of direct labor and factory overhead costs. (846)

copyright An exclusive right to publish and sell a literary, artistic, or musical composition. (461)

corporation A business organized under state or federal statutes as a separate legal entity. (8)

correcting journal entry An entry that is prepared when an error has already been journalized and posted. (72)

cost A payment of cash (or a commitment to pay cash in the future) for the purpose of generating revenues. (843)

cost accounting system A branch of managerial accounting concerned with accumulating manufacturing costs for financial reporting and decision-making purposes. (874)

cost allocation The process of assigning indirect cost to a cost object, such as a job. (880)

cost behavior The manner in which a cost changes in relation to its activity base (driver). (966)

cost center A decentralized unit in which the department or division manager has responsibility for the control of costs incurred and the authority to make decisions that affect these costs. (1116)

cost concept A concept of accounting that determines the amount initially entered into the accounting records for purchases. (8)

cost method A method of accounting for equity investments representing less than 20% of the outstanding shares of the investee. The purchase is at original cost, and any gains or losses upon sale are recognized by the difference between the sale proceeds and the original cost. (671)

cost object The object or segment of operations to which costs are related for management's use, such as a product or department. (843)

cost of finished goods available The beginning finished goods inventory added to the cost of goods manufactured during the period. (850)

cost of goods manufactured The total cost of making and finishing a product. (850)

cost of goods sold The cost of finished goods available for sale minus the ending finished goods inventory. (850)

cost of goods sold budget A budget of the estimated direct materials, direct labor, and factory overhead consumed by sold products. (1030)

cost of merchandise sold The cost that is reported as an expense when merchandise is sold. (258, 849)

cost of production report A report prepared periodically by a processing department, summarizing (1) the units for which the department is accountable and the disposition of those units and (2) the costs incurred by the department and the allocation of those costs between completed and incomplete production. (918)

cost per equivalent unit The rate used to allocate costs between completed and partially completed production. (925)

cost price approach An approach to transfer pricing that uses cost as the basis for setting the transfer price. (1132)

cost variance The difference between actual cost and the flexible budget at actual volumes. (1071)

cost-volume-profit analysis The systematic examination of the relationships among selling prices, volume of sales and production, costs, expenses, and profits. (972)

cost-volume-profit chart A chart used to assist management in understanding the relationships among costs, expenses, sales, and operating profit or loss. (981)

credit memorandum (credit memo) A form used by a seller to inform the buyer of the amount the seller proposes to credit to the account receivable due from the buyer. (267)

credit period The amount of time the buyer is allowed in which to pay the seller. (266)

credit terms Terms for payment on account by the buyer to the seller. (266)

credits Amounts entered on the right side of an account. (51)

cumulative preferred stock Stock that has a right to receive regular dividends that were not declared (paid) in prior years. (586)

currency exchange rate The rate at which currency in another country can be exchanged for local currency. (1225)

current assets Cash and other assets that are expected to be converted to cash or sold or used up, usually within one year or less, through the normal operations of the business. (157)

current liabilities Liabilities that will be due within a short time (usually one year or less) and that are to be paid out of current assets. (157)

current position analysis A company's ability to pay its current liabilities. (509, 786)

current ratio A financial ratio that is computed by dividing current assets by current liabilities. (180, 787)

currently attainable standards Standards that represent levels of operation that can be attained with reasonable effort. (1069)

D

debit memorandum (debit memo) A form used by a buyer to inform the seller of the amount the buyer proposes to debit to the account payable due the seller. (271)

debits Amounts entered on the left side of an account. (51)

debt securities Notes and bond investments that provide interest revenue over a fixed maturity. (667)

decision making A component inherent in the other management processes of planning, directing, controlling, and improving. (841)

deficiency The debit balance in the owner's equity account of a partner. (556)

deficit A debit balance in the retained earnings account. (585)

defined benefit plan A pension plan that promises employees a fixed annual pension benefit at retirement, based on years of service and compensation levels. (505)

defined contribution plan A pension plan that requires a fixed amount of money to be invested on the employee's behalf during the employee's working years. (505)

depletion The process of transferring the cost of natural resources to an expense account. (459)

depreciate To lose usefulness as all fixed assets except land do. (117)

depreciation The systematic periodic transfer of the cost of a fixed asset to an expense account during its expected useful life. (117, 449)

depreciation expense The portion of the cost of a fixed asset that is recorded as an expense each year of its useful life. (117)

differential analysis The area of accounting concerned with the effect of alternative courses of action on revenues and costs. (1158)

differential cost The amount of increase or decrease in cost expected from a particular course of action compared with an alternative. (1159)

differential income (or loss) The difference between the differential revenue and the differential costs. (1159)

differential revenue The amount of increase or decrease in revenue expected from a particular course of action as compared with an alternative. (1159)

direct costs Costs that can be traced directly to a cost object. (843)

direct labor cost The wages of factory workers who are directly involved in converting materials into a finished product. (845)

direct labor cost budget Budget that estimates direct labor hours and related costs needed to support budgeted production. (1028)

direct labor rate variance The cost associated with the difference between the standard rate and the actual rate paid for direct labor used in producing a commodity. (1076)

direct labor time variance The cost associated with the difference between the standard hours and the actual hours of direct labor spent producing a commodity. (1077)

direct materials cost The cost of materials that are an integral part of the finished product. (844)

direct materials price variance The cost associated with the difference between the standard price and the actual price of direct materials used in producing a commodity. (1074)

direct materials purchases budget A budget that uses the production budget as a starting point to budget materials purchases. (1026)

direct materials quantity variance The cost associated with the difference between the standard quantity and the actual quantity of direct materials used in producing a commodity. (1074)

direct method A method of reporting the cash flows from operating activities as the difference be-

tween the operating cash receipts and the operating cash payments. (725)

direct write-off method The method of accounting for uncollectible accounts that recognizes the expense only when accounts are judged to be worthless. (401)

directing The process by which managers, given their assigned level of responsibilities, run day-to-day operations. (841)

discount The interest deducted from the maturity value of a note or the excess of the face amount of bonds over their issue price. (588, 627)

dishonored note receivable A note that the maker fails to pay on the due date. (413)

dividend yield A ratio, computed by dividing the annual dividends paid per share of common stock by the market price per share at a specific date, that indicates the rate of return to stockholders in terms of cash dividend distributions. (683, 800)

dividends Distribution of a corporation's earnings to stockholders. (584)

dividends per share Measures the extent to which earnings are being distributed to common shareholders. (799)

double-declining-balance method A method of depreciation that provides periodic depreciation expense based on the declining book value of a fixed asset over its estimated life. (453)

double-entry accounting system A system of accounting for recording transactions, based on recording increases and decreases in accounts so that debits equal credits. (53)

drawing The account used to record amounts withdrawn by an owner of a proprietorship. (52)

DuPont formula An expanded expression of return on investment determined by multiplying the profit margin by the investment turnover. (1123)

E

earnings The amount by which revenues exceed expenses. (15)

earnings per common share (EPS) Net income per share of common stock outstanding during a period. (601, 627)

earnings per share (EPS) on common stock The profitability ratio of net income available to common shareholders to the number of common shares outstanding. (625, 798)

e-commerce The use of the Internet for performing business transactions. (229)

effective interest rate method The method of amortizing discounts and premiums that provides for a constant rate of interest on the carrying amount of the bonds at the beginning of each period; often called simply the "interest method." (630)

effective rate of interest The market rate of interest at the time bonds are issued. (627)

electronic funds transfer (EFT) A system in which computers rather than paper (money, checks, etc.) are used to effect cash transactions. (367)

elements of internal control The control environment, risk assessment, control activities, information and communication, and monitoring. (360)

employee fraud The intentional act of deceiving an employer for personal gain. (360)

employee's earnings record A detailed record of each employee's earnings. (500)

engineering change order The document that initiates changing a product or process. (1176)

equity method A method of accounting for an investment in common stock by which the investment account is adjusted for the investor's share of periodic net income and cash dividends of the investee. (672)

equity securities The common and preferred stock of a firm. (667)

equivalent units of production The number of production units that could have been completed within a given accounting period, given the resources consumed. (921)

ethics Moral principles that guide the conduct of individuals. (4)

expenses Assets used up or services consumed in the process of generating revenues. (12, 53)

extraordinary item An event or transaction that is unusual in nature and infrequent in occurrence. (806)

F

face amount The principal of a bond, or the amount that must be repaid on the date the bond matures. (627)

factory burden Another term for manufacturing overhead or factory overhead. (845)

factory overhead cost All of the costs of producing a product except for direct materials and direct labor. (845)

factory overhead cost budget Budget that estimates the cost for each item of factory overhead needed to support budgeted production. (1029)

factory overhead cost variance report Reports budgeted and actual costs for variable and fixed factory overhead along with the related controllable and volume variances. (1083)

fair value The price that would be received for selling an asset or paying off a liability, often the market price for an equity or debt security. (675)

favorable cost variance A variance that occurs when the actual cost is less than standard cost. (1071)

feedback Measures provided to operational employees or managers on the performance of subunits of the organization. These measures are used by employees to adjust a process or a behavior to achieve goals. See management by exception. (841)

fees earned Revenue from providing services. (12)

FICA tax Federal Insurance Contributions Act tax used to finance federal programs for old-age and disability benefits (social security) and health insurance for the aged (Medicare). (494)

financial accounting The branch of accounting that is concerned with recording transactions using generally accepted accounting principles (GAAP) for a business or other economic unit and with a periodic preparation of various statements from such records. (3, 839)

Financial Accounting Standards Board (FASB) The authoritative body that has the primary responsibility for developing accounting principles. (7)

financial statements Financial reports that summarize the effects of events on a business. (15)

finished goods inventory The direct materials costs, direct labor costs, and factory overhead costs of finished products that have not been sold. (848)

finished goods ledger The subsidiary ledger that contains the individual accounts for each kind of commodity or product produced. (885)

first-in, first-out (FIFO) inventory cost flow method The method of inventory costing based on the assumption that the costs of merchandise sold should be charged against revenue in the order in which the costs were incurred. (318, 920)

fiscal year The annual accounting period adopted by a business. (178)

fixed asset turnover ratio The number of dollars of sales that are generated from each dollar of average fixed assets during the year, computed by dividing the net sales by the average net fixed assets. (464)

fixed assets (or plant assets) Long-term or relatively permanent tangible assets such as equipment, machinery, and buildings that are used in the normal business operations and that depreciate over time. (116, 157, 444)

fixed costs Costs that tend to remain the same in amount, regardless of variations in the level of activity. (968)

flexible budget A budget that adjusts for varying rates of activity. (1020)

FOB (free on board) destination Freight terms in which the seller pays the transportation costs from the shipping point to the final destination. (273)

FOB (free on board) shipping point Freight terms in which the buyer pays the transportation costs from the shipping point to the final destination. (273)

free cash flow The amount of operating cash flow remaining after replacing current productive capacity and maintaining current dividends. (744)

fringe benefits Benefits provided to employees in addition to wages and salaries. (504)

G

general journal The two-column form used for entries that do not "fit" in any of the special journals. (214)

general ledger The primary ledger, when used in conjunction with subsidiary ledgers, that contains all of the balance sheet and income statement accounts. (213)

general-purpose financial statements A type of financial accounting report that is distributed to external users. The term "general purpose" refers to the wide range of decision-making needs that the reports are designed to serve. (4)

generally accepted accounting principles (GAAP) Generally accepted guidelines for the preparation of financial statements. (6)

goal conflict A condition that occurs when individual objectives conflict with organizational objectives. (1018)

goodwill An intangible asset that is created from such favorable factors as location, product quality, reputation, and managerial skill. (461)

gross pay The total earnings of an employee for a payroll period. (492)

gross profit Sales minus the cost of merchandise sold. (258)

gross profit method A method of estimating inventory cost that is based on the relationship of gross profit to sales. (337)

H

held-to-maturity securities Investments in bonds or other debt securities that management intends to hold to their maturity. (679)

high-low method A technique that uses the highest and lowest total costs as a basis for estimating the variable cost per unit and the fixed cost component of a mixed cost. (969)

horizontal analysis Financial analysis that compares an item in a current statement with the same item in prior statements. (73, 780)

I

ideal standards Standards that can be achieved only under perfect operating conditions, such as no idle time, no machine breakdowns, and no materials spoilage; also called theoretical standards. (1069)

in arrears Cumulative preferred stock dividends that have not been paid in prior years are said to be in arrears. (586)

income from operations (operating income) Revenues less operating expenses and service department charges for a profit or an investment center. (261)

income statement A summary of the revenue and expenses for a specific period of time, such as a month or a year. (15)

Income Summary An account to which the revenue and expense account balances are transferred at the end of a period. (159)

indirect costs Costs that cannot be traced directly to a cost object. (843)

indirect method A method of reporting the cash flows from operating activities as the net income from operations adjusted for all deferrals of past cash receipts and payments and all accruals of expected future cash receipts and payments. (726)

inflation A period when prices in general are rising and the purchasing power of money is declining. (1225)

installment note A debt that requires the borrower to make equal periodic payments to the lender for the term of the note. (634)

intangible assets Long-term assets that are useful in the operations of a business, are not held for sale, and are without physical qualities. (460)

interest revenue Money received for interest. (12)

internal controls The policies and procedures used to safeguard assets, ensure accurate business information, and ensure compliance with laws and regulations. (213, 358)

internal rate of return (IRR) method A method of analysis of proposed capital investments that uses present value concepts to compute the rate of return from the net cash flows expected from the investment. (1219)

International Accounting Standards Board (IASB) An organization that issues International Financial Reporting Standards for many countries outside the United States. (7)

inventory analysis A company's ability to manage its inventory effectively. (790)

inventory shrinkage (inventory shortage) The amount by which the merchandise for sale, as indicated by the balance of the merchandise inventory account, is larger than the total amount of merchandise counted during the physical inventory. (278)

inventory turnover The relationship between the volume of goods sold and inventory, computed by dividing the cost of goods sold by the average inventory. (334, 791)

investee The company whose stock is purchased by the investor. (670)

investment center A decentralized unit in which the manager has the responsibility and authority to make decisions that affect not only costs and revenues but also the fixed assets available to the center. (1122)

investment turnover A component of the rate of return on investment, computed as the ratio of sales to invested assets. (1123)

investments The balance sheet caption used to report long-term investments in stocks not intended as a source of cash in the normal operations of the business. (667)

investor The company investing in another company's stock. (670)

invoice The bill that the seller sends to the buyer. (215, 266)

J

job cost sheet An account in the work in process subsidiary ledger in which the costs charged to a particular job order are recorded. (877)

job order cost system A type of cost accounting system that provides for a separate record of the cost of each particular quantity of product that passes through the factory. (874)

journal The initial record in which the effects of a transaction are recorded. (55)

journal entry The form of recording a transaction in a journal. (56)

journalizing The process of recording a transaction in the journal. (56)

just-in-time (JIT) processing A processing approach that focuses on eliminating time, cost, and poor quality within manufacturing and nonmanufacturing processes. (935)

L

last-in, first-out (LIFO) inventory cost flow method A method of inventory costing based on the assumption that the most recent merchandise inventory costs should be charged against revenue. (318)

ledger A group of accounts for a business. (52)

liabilities The rights of creditors that represent debts of the business. (9, 52)

limited liability company (LLC) A business form consisting of one or more persons or entities filing an operating agreement with a state to conduct business with limited liability to the owners, yet treated as a partnership for tax purposes. (8, 540)

line department A unit that is directly involved in the basic objectives of an organization. (840)

liquidation The winding-up process when a partnership goes out of business. (551)

liquidity The ability to convert assets into cash. (179)

long-term liabilities Liabilities that usually will not be due for more than one year. (157)

lower-of-cost-or-market (LCM) method A method of valuing inventory that reports the inventory at the lower of its cost or current market value (replacement cost). (328)

M

management (or managerial) accounting The branch of accounting that uses both historical and estimated data in providing information that management uses in conducting daily operations, in planning future operations, and in developing overall business strategies. (3, 839)

management by exception The philosophy of managing which involves monitoring the operating results of implemented plans and comparing the expected results with the actual results. This feedback allows management to isolate significant variations for further investigation and possible remedial action. (841)

management process The five basic management functions of (1) planning, (2) directing, (3) controlling, (4) improving, and (5) decision making. (840)

Management's Discussion and Analysis (MD&A) An annual report disclosure that provides management's analysis of the results of operations and financial condition. (801)

manufacturing business A type of business that changes basic inputs into products that are sold to individual customers. (2)

manufacturing cells A grouping of processes where employees are cross-trained to perform more than one function. (936)

manufacturing overhead Costs, other than direct materials and direct labor costs, that are incurred in the manufacturing process. (845)

margin of safety Indicates the possible decrease in sales that may occur before an operating loss results. (988)

market price approach An approach to transfer pricing that uses the price at which the product or service transferred could be sold to outside buyers as the transfer price. (1129)

market rate of interest The rate determined from sales and purchases of similar bonds. (627)

master budget The comprehensive budget plan linking all the individual budgets related to sales, cost of goods sold, operating expenses, projects, capital expenditures, and cash. (1023)

matching concept (or matching principle) A concept of accounting in which expenses are matched with the revenue generated during a period by those expenses. (15, 104)

materials inventory The cost of materials that have not yet entered into the manufacturing process. (848)

materials ledger The subsidiary ledger containing the individual accounts for each type of material. (875)

materials requisition The form or electronic transmission used by a manufacturing department to authorize materials issuances from the storeroom. (877)

maturity value The amount that is due at the maturity or due date of a note. (412)

merchandise available for sale The cost of merchandise available for sale to customers calculated by adding the beginning merchandise inventory to net purchases. (255, 849)

merchandise inventory Merchandise on hand (not sold) at the end of an accounting period. (258)

merchandising business A type of business that purchases products from other businesses and sells them to customers. (2)

mixed cost A cost with both variable and fixed characteristics, sometimes called a semivariable or semifixed cost. (969)

mortgage notes An installment note that may be secured by a pledge of the borrower's assets. (634)

multiple-step income statement A form of income statement that contains several sections, subsections, and subtotals. (259)

N

natural business year A fiscal year that ends when business activities have reached the lowest point in an annual operating cycle. (179)

negotiated price approach An approach to transfer pricing that allows managers of decentralized units to agree (negotiate) among themselves as to the transfer price. (1130)

net income or net profit The amount by which revenues exceed expenses. (15)

net loss The amount by which expenses exceed revenues. (15)

net pay Gross pay less payroll deductions; the amount the employer is obligated to pay the employee. (492)

net present value method A method of analysis of proposed capital investments that focuses on the present value of the cash flows expected from the investments. (1216)

net realizable value The estimated selling price of an item of inventory less any direct costs of disposal, such as sales commissions. (330, 403)

net sales Revenue received for merchandise sold to customers less any sales returns and allowances and sales discounts. (261)

nonfinancial performance measure A performance measure expressed in units rather than dollars. (1088)

normal balance of an account The normal balance of an account can be either a debit or a credit depending on whether increases in the account are recorded as debits or credits. (54)

notes receivable A customer's written promise to pay an amount and possibly interest at an agreed-upon rate. (157, 400)

number of days' sales in inventory The relationship between the volume of sales and inventory, computed by dividing the inventory at the end of the year by the average daily cost of goods sold. (335, 791)

number of days' sales in receivables The relationship between sales and accounts receivable, computed by dividing the net accounts receivable at the end of the year by the average daily sales. (416, 790)

number of times interest charges are earned A ratio that measures creditor margin of safety for interest payments, calculated as income before interest and taxes divided by interest expense. (638, 793)

O

objectives (goals) Developed in the planning stage, these reflect the direction and desired outcomes of certain courses of action. (841)

objectivity concept A concept of accounting that requires accounting records and the data reported in financial statements to be based on objective evidence. (8)

operating leases Leases that do not meet the criteria for capital leases and thus are accounted for as operating expenses. (448)

operating leverage A measure of the relative mix of a business's variable costs and fixed costs, computed as contribution margin divided by operating income. (986)

operational planning The development of short-term plans to achieve goals identified in a business's strategic plan. Sometimes called tactical planning. (841)

opportunity cost The amount of income forgone from an alternative to a proposed use of cash or its equivalent. (1166)

other comprehensive income Specified items that are reported separately from net income, including foreign currency items, pension liability adjustments, and unrealized gains and losses on investments. (684)

other expense Expenses that cannot be traced directly to operations. (262)

other income Revenue from sources other than the primary operating activity of a business. (262)

outstanding stock The stock in the hands of stockholders. (585)

overapplied factory overhead The amount of factory overhead applied in excess of the actual factory overhead costs incurred for production during a period. (882)

owner's equity The owner's right to the assets of the business. (9, 52)

P

paid-in capital Capital contributed to a corporation by the stockholders and others. (584)

par The monetary amount printed on a stock certificate. (585)

parent company The corporation owning all or a majority of the voting stock of the other corporation. (674)

partnership An unincorporated business form consisting of two or more persons conducting business as co-owners for profit. (7, 539)

partnership agreement The formal written contract creating a partnership. (539)

patents Exclusive rights to produce and sell goods with one or more unique features. (460)

payroll The total amount paid to employees for a certain period. (491)

payroll register A multicolumn report used to assemble and summarize payroll data at the end of each payroll period. (498)

pension A cash payment to retired employees. (505)

period costs Those costs that are used up in generating revenue during the current period and that are not involved in manufacturing a product, such as selling, general, and administratvie expenses. (846)

periodic inventory system The inventory system in which the inventory records do not show the amount available for sale or sold during the period. (261)

perpetual inventory system The inventory system in which each purchase and sale of merchandise is recorded in an inventory account. (261)

petty cash fund A special cash fund to pay relatively small amounts. (375)

physical inventory A detailed listing of merchandise on hand. (317)

planning A phase of the management process whereby objectives are outlined and courses of action determined. (841)

posting The process of transferring the debits and credits from the journal entries to the accounts. (59)

predetermined factory overhead rate The rate used to apply factory overhead costs to the goods manufactured. The rate is determined by dividing the budgeted overhead cost by the estimated activity usage at the beginning of the fiscal period. (880)

preferred stock A class of stock with preferential rights over common stock. (586)

premium The excess of the issue price of a stock over its par value or the excess of the issue price of bonds over their face amount. (588, 627)

prepaid expenses Items such as supplies that will be used in the business in the future. (11, 105)

present value concept Cash to be received (or paid) in the future is not the equivalent of the same amount of money received at an earlier date. (1214)

present value index An index computed by dividing the total present value of the net cash flow to be received from a proposed capital investment by the amount to be invested. (1218)

present value of an annuity The sum of the present values of a series of equal cash flows to be received at fixed intervals. (1215)

price-earnings (P/E) ratio The ratio of the market price per share of common stock, at a specific date, to the annual earnings per share. (799)

prime costs The combination of direct materials and direct labor costs. (846)

prior period adjustments Corrections of material errors related to a prior period or periods, excluded from the determination of net income. (598)

private accounting The field of accounting whereby accountants are employed by a business firm or a not-for-profit organization. (3)

process A sequence of activities linked together for performing a particular task. (1088)

process cost system A type of cost system that accumulates costs for each of the various departments within a manufacturing facility. (874, 914)

process manufacturers Manufacturers that use large machines to process a continuous flow of raw materials through various stages of completion into a finished state. (914)

product cost concept A concept used in applying the cost-plus approach to product pricing in which only the costs of manufacturing the product, termed the product cost, are included in the cost amount to which the markup is added. (1171)

product costs The three components of manufacturing cost: direct materials, direct labor, and factory overhead costs. (846)

production bottleneck A condition that occurs when product demand exceeds production capacity. (1173)

production budget A budget of estimated unit production. (1025)

profit The difference between the amounts received from customers for goods or services provided and the amounts paid for the inputs used to provide the goods or services. (2)

profit center A decentralized unit in which the manager has the responsibility and the authority to make decisions that affect both costs and revenues (and thus profits). (1118)

profit margin A component of the rate of return on investment, computed as the ratio of income from operations to sales. (1123)

profit-volume chart A chart used to assist management in understanding the relationship between profit and volume. (982)

profitability The ability of a firm to earn income. (786)

proprietorship A business owned by one individual. (7)

public accounting The field of accounting where accountants and their staff provide services on a fee basis. (6)

public companies Companies that issue publicly traded debt or equity securities. (D-1)

purchase order The purchase order authorizes the purchase of the inventory from an approved vendor. (316)

purchases discounts Discounts taken by the buyer for early payment of an invoice. (270)

purchases journal The journal in which all items purchased on account are recorded. (220)

purchases returns and allowances From the buyer's perspective, returned merchandise or an adjustment for defective merchandise. (271)

Q

quick assets Cash and other current assets that can be quickly converted to cash, such as marketable securities and receivables. (510, 788)

quick ratio A financial ratio that measures the ability to pay current liabilities with quick assets (cash, marketable securities, accounts receivable). (510, 788)

R

rate earned on common stockholders' equity A measure of profitability computed by dividing net income, reduced by preferred dividend requirements, by common stockholders' equity. (797)

rate earned on stockholders' equity A measure of profitability computed by dividing net income by total stockholders' equity. (796)

rate earned on total assets A measure of the profitability of assets, without regard to the equity of creditors and stockholders in the assets. (795)

rate of return on investment (ROI) A measure of managerial efficiency in the use of investments in assets, computed as income from operations divided by invested assets. (1123)

ratio of cash to monthly cash expenses Ratio that helps assess how long a company can continue to operate without additional financing or generating positive cash flows from operations. (377)

ratio of fixed assets to long-term liabilities A leverage ratio that measures the margin of safety of long-term creditors, calculated as the net fixed assets divided by the long-term liabilities. (792)

ratio of liabilities to stockholders' equity A comprehensive leverage ratio that measures the relationship of the claims of creditors to stockholders' equity. (21, 792)

ratio of net sales to assets Ratio that measures how effectively a company uses its assets, computed as net sales divided by average total assets. (280, 794)

real (permanent) accounts Term for balance sheet accounts because they are relatively permanent and carried forward from year to year. (158)

realization The sale of assets when a partnership is being liquidated. (551)

receivables All money claims against other entities, including people, business firms, and other organizations. (400)

receiving report The form or electronic transmission used by the receiving personnel to indicate that materials have been received and inspected. (316, 877)

relevant range The range of activity over which changes in cost are of interest to management. (966)

rent revenue Money received for rent. (12)

report form The form of balance sheet with the Liabilities and Owner's Equity sections presented below the Assets section. (263)

residual income The excess of divisional income from operations over a "minimum" acceptable income from operations. (1126)

residual value The estimated value of a fixed asset at the end of its useful life. (449)

responsibility accounting The process of measuring and reporting operating data by areas of responsibility. (1115)

responsibility center An organizational unit for which a manager is assigned responsibility over costs, revenues, or assets. (1017)

restrictions Amounts of retained earnings that have been limited for use as dividends. (598)

retail inventory method A method of estimating inventory cost that is based on the relationship of gross profit to sales. (336)

retained earnings Net income retained in a corporation. (584)

retained earnings statement A summary of the changes in the retained earnings in a corporation for a specific period of time, such as a month or a year. (597)

revenue expenditures Costs that benefit only the current period or costs incurred for normal maintenance and repairs of fixed assets. (447)

revenue journal The journal in which all sales and services on account are recorded. (215)

revenue per employee A measure of the efficiency of the business in generating revenues. (559)

revenue recognition concept The accounting concept that supports reporting revenues when the services are provided to customers. (104)

revenues Increases in owner's equity as a result of selling services or products to customers. (11, 52)

rules of debit and credit In the double-entry accounting system, specific rules for recording debits and credits based on the type of account. (53)

S

sales The total amount charged customers for merchandise sold, including cash sales and sales on account. (12, 260)

sales budget One of the major elements of the income statement budget that indicates the quantity of estimated sales and the expected unit selling price. (1024)

sales discounts From the seller's perspective, discounts that a seller may offer the buyer for early payment. (260)

sales mix The relative distribution of sales among the various products available for sale. (985)

sales returns and allowances From the seller's perspective, returned merchandise or an adjustment for defective merchandise. (260)

Sarbanes-Oxley Act of 2002 An act passed by Congress to restore public confidence and trust in the financial statements of companies. (358)

Securities and Exchange Commission (SEC) An agency of the U.S. government that has authority over the accounting and financial disclosures for companies whose shares of ownership (stock) are traded and sold to the public. (7)

selling expenses Expenses that are incurred directly in the selling of merchandise. (261)

service business A business providing services rather than products to customers. (2)

service department charges The costs of services provided by an internal service department and transferred to a responsibility center. (1118)

setup An overhead activity that consists of changing tooling in machines in preparation for making a new product. (1176)

single-step income statement A form of income statement in which the total of all expenses is deducted from the total of all revenues. (262)

slide An error in which the entire number is moved one or more spaces to the right or the left, such as writing $542.00 as $54.20 or $5,420.00. (70)

solvency The ability of a firm to pay its debts as they come due. (179, 786)

special journals Journals designed to be used for recording a single type of transaction. (213)

special-purpose fund A cash fund used for a special business need. (376)

specific identification inventory cost flow method Inventory method in which the unit sold is identified with a specific purchase. (318)

staff department A unit that provides services, assistance, and advice to the departments with line or other staff responsibilities. (840)

standard cost A detailed estimate of what a product should cost. (1068)

standard cost systems Accounting systems that use standards for each element of manufacturing cost entering into the finished product. (1068)

standards Peformance goals, often relating to how much a product should cost. (1068)

statement of cash flows A summary of the cash receipts and cash payments for a specific period of time, such as a month or a year. (15, 724)

statement of cost of goods manufactured The income statement of manufacturing companies. (850)

statement of members' equity A summary of the changes in each member's equity in a limited liability corporation that have occurred during a specific period of time. (558)

statement of owner's equity A summary of the changes in owner's equity that have occurred during a specific period of time, such as a month or a year. (15)

statement of partnership equity A summary of the changes in each partner's capital in a partnership that have occurred during a specific period of time. (558)

statement of partnership liquidation A summary of the liquidation process whereby cash is distributed to the partners based on the balances in their capital accounts. (553)

statement of stockholders' equity A summary of the changes in the stockholders' equity in a corporation that have occurred during a specific period of time. (599)

static budget A budget that does not adjust to changes in activity levels. (1019)

stock Shares of ownership of a corporation. (582)

stock dividend A distribution of shares of stock to its stockholders. (593)

stock split A reduction in the par or stated value of a common stock and the issuance of a proportionate number of additional shares. (600)

stockholders The owners of a corporation. (582)

stockholders' equity The owners' equity in a corporation. (584)

straight-line method A method of depreciation that provides for equal periodic depreciation expense over the estimated life of a fixed asset. (450)

strategic planning The development of a long-range course of action to achieve business goals. (841)

strategies The means by which business goals and objectives will be achieved. (841)

subsidiary company The corporation that is controlled by a parent company. (674)

subsidiary inventory ledger The subsidiary ledger containing individual accounts for items of inventory. (317)

subsidiary ledger A ledger containing individual accounts with a common characteristic. (213)

sunk cost A cost that is not affected by subsequent decisions. (1161)

T

T account The simplest form of an account. (50)

target costing The target cost is determined by subtracting a desired profit from a market method determined price. The resulting target cost is used to motivate cost improvements in design and manufacture. (1173)

temporary (nominal) accounts Accounts that report amounts for only one period. (158)

theory of constraints (TOC) A manufacturing strategy that attempts to remove the influence of bottlenecks (constraints) on a process. (1173)

time tickets The form on which the amount of time spent by each employee and the labor cost incurred for each individual job, or for factory overhead, are recorded. (878)

time value of money concept The concept that an amount of money invested today will earn income. (1210)

total cost concept A concept used in applying the cost-plus approach to product pricing in which all the costs of manufacturing the product plus the selling and administrative expenses are included in the cost amount to which the markup is added. (1180)

total manufacturing cost variance The difference between total standard costs and total actual costs for units produced. (1072)

trade discounts Discounts from the list prices in published catalogs or special discounts offered to certain classes of buyers. (277)

trade-in allowance The amount a seller allows a buyer for a fixed asset that is traded in for a similar asset. (466)

trademark A name, term, or symbol used to identify a business and its products. (461)

trading securities Securities that management intends to actively trade for profit. (675)

transfer price The price charged one decentralized unit by another for the goods or services provided. (1128)

transposition An error in which the order of the digits is changed, such as writing $542 as $452 or $524. (70)

treasury stock Stock that a corporation has once issued and then reacquires. (594)

trial balance A summary listing of the titles and balances of accounts in the ledger. (69)

U

unadjusted trial balance A summary listing of the titles and balances of accounts in the ledger prior to the posting of adjusting entries. (70)

underapplied factory overhead The amount of actual factory overhead in excess of the factory overhead applied to production during a period. (882)

unearned revenue The liability created by receiving revenue in advance. (62, 106)

unfavorable cost variance A variance that occurs when the actual cost exceeds the standard cost. (1071)

unit contribution margin The dollars available from each unit of sales to cover fixed costs and provide operating profits. (974)

unit of measure concept A concept of accounting requiring that economic data be recorded in dollars. (8)

units-of-production method A method of depreciation that provides for depreciation expense based on the expected productive capacity of a fixed asset. (451)

unrealized gain or loss Changes in the fair value of equity or debt securities for a period. (675)

V

variable cost concept A concept used in applying the cost-plus approach to product pricing in which only the variable costs are included in the cost amount to which the markup is added. (1182)

variable costing The concept that considers the cost of products manufactured to be composed only of those manufacturing costs that increase or decrease as the volume of production rises or falls (direct materials, direct labor, and variable factory overhead). (972)

variable costs Costs that vary in total dollar amount as the level of activity changes. (966)

vertical analysis An analysis that compares each item in a current statement with a total amount within the same statement. (127, 783)

volume variance The difference between the budgeted fixed overhead at 100% of normal capacity and the standard fixed overhead for the actual production achieved during the period. (1081)

voucher A special form for recording relevant data about a liability and the details of its payment. (368)

voucher system A set of procedures for authorizing and recording liabilities and cash payments. (368)

W

whole units The number of units in production during a period, whether completed or not. (921)

work in process inventory The direct materials costs, the direct labor costs, and the applied factory overhead costs that have entered into the manufacturing process but are associated with products that have not been finished. (848)

working capital The excess of the current assets of a business over its current liabilities. (179, 787)

Y

yield A measure of materials usage efficiency. (935)

Z

zero-based budgeting A concept of budgeting that requires all levels of management to start from zero and estimate budget data as if there had been no previous activities in their units. (1019)

Subject Index

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Abbreviations and Acronyms Commonly Used in Business and Accounting

AAA	American Accounting Association
ABC	Activity-based costing
AICPA	American Institute of Certified Public Accountants
CIA	Certified Internal Auditor
CIM	Computer-integrated manufacturing
CMA	Certified Management Accountant
CPA	Certified Public Accountant
Cr.	Credit
Dr.	Debit
EFT	Electronic funds transfer
EPS	Earnings per share
FAF	Financial Accounting Foundation
FASB	Financial Accounting Standards Board
FEI	Financial Executives International
FICA tax	Federal Insurance Contributions Act tax
FIFO	First-in, first-out
FOB	Free on board
GAAP	Generally accepted accounting principles
GASB	Governmental Accounting Standards Board
GNP	Gross National Product
IMA	Institute of Management Accountants
IRC	Internal Revenue Code
IRS	Internal Revenue Service
JIT	Just-in-time
LIFO	Last-in, first-out
Lower of C or M	Lower of cost or market
MACRS	Modified Accelerated Cost Recovery System
n/30	Net 30
n/eom	Net, end-of-month
P/E Ratio	Price-earnings ratio
POS	Point of sale
ROI	Return on investment
SEC	Securities and Exchange Commission
TQC	Total quality control

Classification of Accounts

Account Title	*Account Classification*	*Normal Balance*	*Financial Statement*
Accounts Payable	Current liability	Credit	Balance sheet
Accounts Receivable	Current asset	Debit	Balance sheet
Accumulated Depletion	Contra fixed asset	Credit	Balance sheet
Accumulated Depreciation	Contra fixed asset	Credit	Balance sheet
Advertising Expense	Operating expense	Debit	Income statement
Allowance for Doubtful Accounts	Contra current asset	Credit	Balance sheet
Amortization Expense	Operating expense	Debit	Income statement
Bonds Payable	ZLong-term liability	Credit	Balance sheet
Building	Fixed asset	Debit	Balance sheet
__________ Capital	Owner's equity	Credit	Statement of owner's equity/ Balance sheet
Capital Stock	Stockholders' equity	Credit	Balance sheet
Cash	Current asset	Debit	Balance sheet
Cash Dividends	Stockholders' equity	Debit	Retained earnings statement
Cash Dividends Payable	Current liability	Credit	Balance sheet
Common Stock	Stockholders' equity	Credit	Balance sheet
Cost of Merchandise (Goods) Sold	Cost of merchandise (goods sold)	Debit	Income statement
Deferred Income Tax Payable	Current liability/Long-term liability	Credit	Balance sheet
Delivery Expense	Operating expense	Debit	Income statement
Depletion Expense	Operating expense	Debit	Income statement
Discount on Bonds Payable	Long-term liability	Debit	Balance sheet
Dividend Revenue	Other income	Credit	Income statement
Dividends	Stockholders' equity	Debit	Retained earnings statement
__________ Drawing	Owner's equity	Debit	Statement of owner's equity
Employees Federal Income Tax Payable	Current liability	Credit	Balance sheet
Equipment	Fixed asset	Debit	Balance sheet
Exchange Gain	Other income	Credit	Income statement
Exchange Loss	Other expense	Debit	Income statement
Factory Overhead (Overapplied)	Deferred credit	Credit	Balance sheet (interim)
Factory Overhead (Underapplied)	Deferred debit	Debit	Balance sheet (interim)
Federal Income Tax Payable	Current liability	Credit	Balance sheet
Federal Unemployment Tax Payable	Current liability	Credit	Balance sheet
Finished Goods	Current asset	Debit	Balance sheet
Freight In	Cost of merchandise sold	Debit	Income statement
Freight Out	Operating expense	Debit	Income statement
Gain on Disposal of Fixed Assets	Other income	Credit	Income statement
Gain on Redemption of Bonds	Other income	Credit	Income statement
Gain on Sale of Investments	Other income	Credit	Income statement
Goodwill	Intangible asset	Debit	Balance sheet
Income Tax Expense	Income tax	Debit	Income statement
Income Tax Payable	Current liability	Credit	Balance sheet
Insurance Expense	Operating expense	Debit	Income statement
Interest Expense	Other expense	Debit	Income statement
Interest Receivable	Current asset	Debit	Balance sheet
Interest Revenue	Other income	Credit	Income statement
Investment in Bonds	Investment	Debit	Balance sheet
Investment in Stocks	Investment	Debit	Balance sheet
Investment in Subsidiary	Investment	Debit	Balance sheet
Land	Fixed asset	Debit	Balance sheet
Loss on Disposal of Fixed Assets	Other expense	Debit	Income statement
Loss on Redemption of Bonds	Other expense	Debit	Income statement

Account Title	*Account Classification*	*Normal Balance*	*Financial Statement*
Loss on Sale of Investments	Other expense	Debit	Income statement
Marketable Securities	Current asset	Debit	Balance sheet
Materials	Current asset	Debit	Balance sheet
Medicare Tax Payable	Current liability	Credit	Balance sheet
Merchandise Inventory	Current asset/Cost of merchandise sold	Debit	Balance sheet/Income statement
Notes Payable	Current liability/Long-term liability	Credit	Balance sheet
Notes Receivable	Current asset/Investment	Debit	Balance sheet
Organizational Expenses	Operating expense	Debit	Income statement
Patents	Intangible asset	Debit	Balance sheet
Paid-In Capital from Sale of Treasury Stock	Stockholders' equity	Credit	Balance sheet
Paid-In Capital in Excess of Par (Stated Value)	Stockholders' equity	Credit	Balance sheet
Payroll Tax Expense	Operating expense	Debit	Income statement
Pension Expense	Operating expense	Debit	Income statement
Petty Cash	Current asset	Debit	Balance sheet
Preferred Stock	Stockholders' equity	Credit	Balance sheet
Premium on Bonds Payable	Long-term liability	Credit	Balance sheet
Prepaid Insurance	Current asset	Debit	Balance sheet
Prepaid Rent	Current asset	Debit	Balance sheet
Purchases	Cost of merchandise sold	Debit	Income statement
Purchases Discounts	Cost of merchandise sold	Credit	Income statement
Purchases Returns and Allowances	Cost of merchandise sold	Credit	Income statement
Rent Expense	Operating expense	Debit	Income statement
Rent Revenue	Other income	Credit	Income statement
Retained Earnings	Stockholders' equity	Credit	Balance sheet/Retained earnings statement
Salaries Expense	Operating expense	Debit	Income statement
Salaries Payable	Current liability	Credit	Balance sheet
Sales	Revenue from sales	Credit	Income statement
Sales Discounts	Revenue from sales	Debit	Income statement
Sales Returns and Allowances	Revenue from sales	Debit	Income statement
Sales Tax Payable	Current liability	Credit	Balance sheet
Sinking Fund Cash	Investment	Debit	Balance sheet
Sinking Fund Investments	Investment	Debit	Balance sheet
Social Security Tax Payable	Current liability	Credit	Balance sheet
State Unemployment Tax Payable	Current liability	Credit	Balance sheet
Stock Dividends	Stockholders' equity	Debit	Retained earnings statement
Stock Dividends Distributable	Stockholders' equity	Credit	Balance sheet
Supplies	Current asset	Debit	Balance sheet
Supplies Expense	Operating expense	Debit	Income statement
Treasury Stock	Stockholders' equity	Debit	Balance sheet
Uncollectible Accounts Expense	Operating expense	Debit	Income statement
Unearned Rent	Current liability	Credit	Balance sheet
Utilities Expense	Operating expense	Debit	Income statement
Vacation Pay Expense	Operating expense	Debit	Income statement
Vacation Pay Payable	Current liability/Long-term liability	Credit	Balance sheet
Work in Process	Current asset	Debit	Balance sheet

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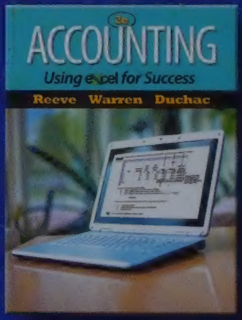

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